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FEDERAL-GRANT RESEARCH
at the
STATE AGRICULTURAL
EXPERIMENT STATIONS

Projects on
POULTRY INDUSTRY
Part 19

Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

Compiled April 15, 1958, by

the State Experiment Stations Division, Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C., for use of workers in agricultural research in the subject-matter areas presented. For information on specific research projects write to the Director of the Station where the research is being conducted.

Issued June 1958

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INTRODUCTION

This compilation is one of a series providing information on State agricultural experiment station research supported by Federal-grant funds appropriated annually by Congress under authorization of the Hatch Act of 1887, as amended and approved Aug. 11, 1955, and Section 204(b) of the Agricultural Marketing Act of 1946. It is prepared for use by research workers in the subject-matter areas presented. Only that part of each State's research program supported by Federal-grant moneys is included.

In addition to the Federal-grant moneys, the State experiment stations receive some Federal support through cooperative agreements or contracts with the U. S. Department of Agriculture. Information on such research, along with other departmental research, is available in the Central Project Office, Agricultural Research Service.

A substantial part of each State agricultural experiment station's research is supported with moneys appropriated by the respective State or Territorial Legislatures and through other forms of private and public financing. Information on current agricultural research at the stations which is not financed under the Federal-grant program or through USDA cooperation can be obtained from experiment station directors.

The information given in the series of Federal-grant compilations includes the title and objectives of each Federal-grant project pertaining to the subject given on the cover. The identification of each project gives the department(s) conducting the research, the station number of the project, and the number of the regional project if it is a contributing project.

Relevant regional projects, if any, appear at the end of the compilation. States having projects contributing to regional projects are indicated. The Roman numeral (and capital letter) refer to the location in the summary of the contributing project title and objectives. The States are grouped into four major regions. These are designated NC-North Central, NE-Northeastern, S-Southern, and W-Western. The capital letter "M" following the letters for the region indicates regional marketing projects.

POULTRY INDUSTRY

GENERAL (COMBINATION OF FOWL)

Breeding

Ind. Evaluation of New Concepts in Quantitative Genetics with Laboratory Organisms. (1) Utilize Tribolium castaneum as biological check on results obtained with Drosophila melanogaster in comparing various breeding methods. To learn (2) effectiveness of various breeding methods for improving performance of plateaued populations; (3) with Drosophila and Tribolium the relative effectiveness of a recently proposed modification of Reciprocal Selection: (4) genetic mechanism of heterosis or hybrid vigor in Drosophila by genetic fractionation of plateaued populations and single cross hybrids with "Marked Inversion Technique." (5) Utilize Drosophila and Tribolium for biological evaluation of other new concepts arising in quantitative genetics.
Poultry Sci. 920 (NC-47) Coop. ARS

Pa. Fertility and Hatchability Studies with Chickens and Turkeys. To determine (1) if genetic differences exist in both fertility and hatchability between families; (2) if differences exist, to determine effect of selection for high and low fertility and hatchability; and (3) investigate relation of annual molt rest period to fertility in chickens.
Poultry Husb. 1162

Tex. The Genetic and Physiological Significance of the Red Cell Antigens of Chickens and Turkeys. To (1) discover additional loci whose genes produce red cell antigens in chickens, and detect loci having antigenic effects in turkeys; (2) check antigenic constitution of breeding birds used each year to see that blood type is compatible with those of supposed parents; (3) determine any association between antigens determined by various loci and characters of economic importance; (4) determine any positive selective value for heterozygous condition at known blood group loci; and (5) test chickens for possible linkage between known independent autosomal loci producing red cell antigens and other autosomal loci having known marker genes.
Poultry Husb. 709 (S-7) Coop. ARS

Breeding (Continued)

Wash. The Study of Genetic Variation in Poultry and Development of New Breeds. Breeding improvement of White Olympian chicken with emphasis on the dominant white gene, rapid feathering and silver genes, improvement of body and egg weight, and increase in reproduction. Breeding improvement of Washington State White Turkey with emphasis on body weight at eight weeks (for broilers) and at 26 weeks, and on reproduction. Nature and extent of genetic variability of economic traits in the two breeds.
Poultry Sci. 763

Wis. Immunogenetic Studies of the Antigens of Pigeon and Dove Species and of the Chicken and Cattle. To study in species crosses, especially pigeons and doves (1) distribution of species-specific properties in the off-spring and backcrosses including agglutinogens and the genes responsible, (2) correlation of serological relationships with fertility and the presence or absence of sperm abnormalities, and (3) possible linkage relationships between these biochemical characters and other qualitative and quantitative characteristics.
Poultry Husb., Vet. Sci., Genet. 545

Economics

Wash. Materials Handling on Poultry and Dairy Farms. Learn engineering and economic merits of hand and mechanical methods of handling and moving feed, eggs, and milk on farms in Washington.
Agr. Engin., Agr. Econ. 1357

Feeds and Nutrition

Ark. Unidentified and Newly Identified Nutritional Factors in Broiler Diets. (1) Learn feeding value of newly recognized growth factors when added to practical broiler diets. (2) Study mode of action through which growth promoting materials incite response and find reason for variability in response.
Poultry Indus. 470

Calif. Microbiological Aspects of Poultry Nutrition. Relationships of microbes and poultry nutrition: (1) reason why turkeys and chickens on an adequate diet containing all known factors show an increased growth rate when fed in addition various antibiotic agents such as crude or pure streptomycin, aureomycin, or penicillin; (2) general relationship between intestinal microbial flora and poultry nutrition.
Bact. 1433

Calif. Amino Acid Needs and Sources for Chickens and Turkeys. (1) Learn amino acid requirements for growth, egg production, and reproduction in chickens and turkeys and study effect of certain amino acid excesses on these requirements. (2) Evaluate types of proteins as amino acid sources for poultry and develop methods for identifying types of proteins accurately and rapidly. (3) Learn types of proteins and availability of amino acids contained in various natural feedstuffs; (4) effect of processing on availability of amino acids from various sources.
Poultry Husb. 1729

Idaho A Microbiological Assay for Unidentified Growth Factors Required by Chicks and Poults. To (1) prepare workable assay for an unidentified growth factor(s) required by chicks and poults, using micro-organisms the growth of which responds to this same factor(s); (2) learn quantity of unidentified growth factor(s) in natural products or refined natural products using assay method; (3) use assay in investigation of place of growth factor in metabolism of micro-organism used; and (4) study role of unknown growth factor in general metabolism.
Agr. Chem., Bact. 207

Md. Nutritive Requirements of Poultry. I. Amino Acids in Poultry Nutrition. To study (1) development of diet consisting of combination of various amino acids as the sole protein source; (2) minimum amount of the required amino acids necessary for normal growth; (3) metabolic functions; (4) protein supplements to efficiently supply the requirement; (5) relationships between individual amino acid requirements and the chicken's and turkey's need for other dietary components.

Poultry Husb. M-35i

Feeds and Nutrition (Continued)

Minn. Evaluation of Established Requirements of Known Nutrients and Consideration of Requirements which Have Not Been Established for (a) Chickens and (b) Turkeys to Approximately Eight Weeks of Age. To study nutrient requirements in relation to current information which may dictate need for altering existing dietary nutrient levels and to conduct research for establishment of more efficient nutrient recommendations regarding recently found nutrients and commercial sources of known nutrients.
Poultry Husb. 2307

Minn. Investigation of the Response of the Chick and the Poult to Unidentified Factors and Other Nutritive and Non-Nutritive Dietary Inclusions to Approximately Eight Weeks of Age. To (1) investigate most adequate and economic sources of unidentified nutrients required by chicks and poults, including fish products, distillers' dried solubles, and milk products; and (2) consider value of nutritive or non-nutritive compounds or materials in ration of chicks and poults as affecting growth, feed efficiency, feathering or livability, including arsonic compounds, antibiotics and other commercially available materials.
Poultry Husb. 2308

Minn. Nutritive Factors Required for Hatchability and Progeny Performance. To determine (1) requirement of the hen for unidentified factors in relation to different dietary levels of known nutrients and variations in ingredient composition; and (2) progeny performance in relation to dietary regime of breeder hens.
Poultry Husb. 2311

Mont. The Comparative Value of Common Grain Combinations in Poultry Feeding. 1. For Palatability and Nutritive Value of Broilers and Turkeys Finished for Market. To determine comparative value of corn, wheat, oats and barley combinations in finishing broilers and turkeys for market.
Poultry Indus., Home Econ. M.S. 812

Nebr. Nutritive Value of Certain Feedstuffs for Growing Chicks and Poults. A. Utilization of Proteins for Growing Chicks and Poults. To determine the combinations of protein concentrates most efficiently utilized when used to supplement a basal ration made up of the most commonly used cereal grains and milling by-products.
Poultry Husb. 94-A

Feeds and Nutrition (Continued)

Nebr. Nutritive Value of Certain Feedstuffs for Growing Chicks and Poults. K. Relative Growth Promoting Value for Chicks, of Various Grades of Corn and Corn Milling By-Products. To find a better basis for evaluation of corn and its by-products.
Poultry Husb. 94-K

Nebr. Study of Optimum Energy and Protein Levels for Chicks and Poults Under Practical Conditions. (1) a. Modify 56 BR to increase efficiency without increasing price unduly. b. Develop a simplified diet with a minimum of unidentified factor sources and additives with performance comparable to a., and that can be custom-mixed by a small feed mill. c. Study reduction of protein levels during finishing periods. (2) a. Compare growth on a pre-starter diet containing 30-32 percent protein for 1st few weeks with growth on conventional 28 percent protein diet. b. Study influence of added fat on poult performance. c. Learn best age for decreasing protein from high pre-starter to lower levels.
Poultry Husb. 527

Nebr. The Effects of Synthetic Hormones on Growth, Fattening and Reproduction in Poultry. (1) Clarify nature of interactions between hormones and ration by learning: if growth stimulated by hormones is limited by present amino acid allowance; if amino acid balance is related to growth and fattening; if high protein content is antagonistic to estrogenic response; relation between caloric-protein ratio of ration and estrogenic effects. (2) Study relation between hormone dosage levels, mode of giving, duration and extent of beneficial effects. (3) Learn endocrine mechanism of broodiness and test new pituitary depressants for use as a control of broodiness. (4) Test effects of carryover of hormone residue on egg production and fertility when birds are tested for market at 20-26 weeks of age and egg carryover when breeders are treated for broodiness.
Poultry Husb. 597

N.Y.C. The Requirements of Poultry for the Members of the B Group of Vitamins. F. The Requirement of Poultry for Niacin. To (1) determine the quantity of each component of Vitamin B complex required by poultry for growth, reproduction, and maintenance of health, amount present in feeds, and stability under practical conditions; (2) discover, isolate, and identify chemically any unknown components of vitamin B complex so that the quantity of these vitamins needed by poultry and their importance in practical rations may likewise be determined; and (3) ascertain physiological mechanism by which vitamins function in metabolism and extent to which they may be stored in the body, rate of storage, and rate of use or depletion.
Poultry Husb. 52-F

Feeds and Nutrition (Continued)

N.Y.C. The Requirements of Poultry for Fat-Soluble Vitamins (Vitamins A, D, E, and K). To determine the quantity of fat-soluble vitamins required for maintenance of health, growth, egg production, and hatchability and the effects of other nutrients and conditions on the requirements for these vitamins.
Poultry Husb. 144

Tex. Unidentified Growth and Hatchability Factors, Vitamin B_{12}, Folic Acid, Pantothenic Acid, and Vitamin A in the Nutrition of Poultry. To (1) study the effect of various unidentified factors on growth, egg production and embryonic development; (2) determine the interrelationships between the sources of unidentified factors and known vitamins, (B_{12}, folic acid and pantothenic acid); (3) determine the vitamin content of eggs associated with decreased hatchability; (4) study the effects of methionine, vitamin B_{12}, and antibiotics on the growth of chicks and poults with and without unidentified factors in the diet; (5) determine the effect of various unidentified factor sources on the vitamin A stability in the feed and storage in the liver of the bird; and (6) study the effects of vitamin B_{12}, and folic acid deficiencies on the metabolic functions of the chick and the developing embryo.
Poultry Sci., Biochem., Nutr. 936

Tex. Relation of Vitamins to Embryonic Development in Chickens and Turkeys. To learn (1) effect of vitamin E on hatchability and embryonic development of turkeys; (2) relationship between vitamin E and antioxidants on hatchability and embryonic development; (3) effects of vitamin E deficiency on histopathology of embryo; (4) effect of vitamin B_{12} on hatchability and embryonic development of chick; (5) effect of B_{12} deficiency on histopathology of chick embryo; (6) relation between vitamin E and B_{12} to known and unidentified nutrients; (7) histopathology of other vitamin deficiencies including biotin, folic acid and pyrixodine in developing chicks and turkeys; (8) by cooperating with other staff members working in incubation, feeding, and marketing involving histology and embryology.
Poultry Sci. 954 Coop. USDA

Wash. A Study of an Unidentified Factor or Factors Required for Growth and Reproduction. To (1) isolate in pure form an unidentified factor required for growth of chicks and for reproduction; (2) chemically characterize, and identify the factor; and (3) make distribution studies of factor in different feed ingredients.
Poultry Sci. 718

Feeds and Nutrition (Continued)

Wash. Investigations on the Amino Acid Requirements of Poultry, and the Effect of Processing on Amino Acid Composition of Protein Supplements. To study (1) quantitative amino acid needs of poultry for growth and egg production; (2) effect of low level amino acid additions on feed use; and (3) effect of processing on amino acid protein supplements composition and their nutritional value for poultry.
Poultry Sci. 1138

Wis. Nutritive Requirements of Poultry with Special Reference to Vitamin and Mineral Requirements. To (1) learn nature of unknown growth factors present in whey and fish by-products, and manner in which their effects are conditioned by environmental factors; (2) vitamin and mineral needs of poultry under various environmental conditions, with special reference to effect upon these needs of stresses such as bacterial competition, early egg production, and increased energy and protein levels of diet.
Poultry, Biochem. 302

Management and Housing

Calif. Criteria for Poultry House Design. Develop (1) environmental adaption criteria for housing poultry; (2) functional design requirement for same. (3) Devise various ways and means of housing and managing poultry to give optimum performance at minimum cost. (4) Develop economical methods of removing, storing, drying, and composting manure.
Poultry Husb., Agr. Engin. 1467 Coop. USDA

Maine Design Data for Building Materials, Construction Practices and Brooding Systems Used in Poultry Houses. Learn (1) life and suitability of construction materials under the environmental conditions found in poultry houses; (2) structural design data for poultry houses; (3) design data for hot water brooding systems.
Agr. Engin., Poultry 112 (NE-8) Coop. USDA

Meat Investigations

Ind. The Effects of Processing, Holding (During Marketing) and Preparation for Consumption of Poultry Meat upon its Tenderness and Flavor. To learn effects of various methods of processing, holding, storage, and preparation of poultry meat upon tenderness, juiciness, flavor, and other organoleptic properties.
Poultry Sci., Home Econ. 836

Ind. Freezing of Poultry Meat. To learn (1) relative effectiveness of various freezing techniques on quality of poultry meat; (2) comparative costs between immersion freezing and wind tunnel freezing of poultry meat.
Poultry Sci. 856

Kans. The Percent Shrinkage and Quality of Turkeys and Broilers in Market Channels. To investigate percent shrinkage of dressed turkeys and broilers during dressing, storage, and cooking, in order to determine condition under which most pounds of salable product may be produced.
Poultry Husb., Chem., Home Econ. 387 (NCM-7)

Mich. Poultry Meat Products. To determine (1) suitable processing techniques and methods of handling off-grade, low grade, and other poultry with less consumer demand; (2) yield and cost of preparation of various classes of poultry meat; (3) new processing methods and new items so that a greater variety of products are available; (4) consumer preferences and acceptance of old and new poultry meat products; and (5) factors in quality deterioration and means to minimize losses.
Poultry Husb., Chem., Econ., Bact., Home Econ. 107

Minn. Factors Affecting Quality Loss in Poultry Meat. 1. The Effectiveness of Methods of Killing, Bleeding and Scalding on Quality Preservation. 2. The Influence of Methods of Pre-cooling and Freezing on Quality Preservation. To study (1) influence of methods of killing on extent of bleeding, ease of feather removal, appearance, and keeping quality of dressed and ready-to-cook poultry; (2) effect of method of bleeding on blood loss and to devise ways to reduce numbers of misbled birds; (3) effect of amount of blood loss on appearance and keeping quality of both fresh and frozen poultry; (4) influence of time and temperature of scald and use of wetting agents and other compounds on ease of feather removal, appearance, and keeping quality; and (5) influence of methods of precooling and freezing on quality preservation.
Poultry Husb. 2309 (NCM-7)

Meat Investigations (Continued)

Minn. A Study of Moisture Levels in Processed Poultry. To (1) study effects of moisture level in processed poultry on cooking losses, yields of cooked edible meat, and palatability; (2) compare keeping quality of low and high moisture level birds, fresh and frozen; (3) study factors affecting water absorption and retention by poultry during the chilling process and subsequent thereto.
Poultry Husb. 2314

Mo. Factors Affecting the Flavor of Poultry. To learn (1) relationship of kind and amount of ingredients in ration to flavor of cooked broilers, fowl, roosters, and turkeys; (2) influence of present processing methods on flavor changes in cooked birds; and (3) influence of packaging materials and storage conditions on flavor stability.
Poultry 313

Mo. The Factors Affecting the Palatability and Nutritive Value of Poultry. To learn (1) loss of water soluble organic material due to processing; (2) possibility of nutritive loss due to packaging materials and storage conditions; (3) amount of heat labile vitamins, essential amino acids (lysine and methionine) in raw meat and meat fried, roasted or broiled. (4) Conduct palatability tests on poultry prepared by different processing methods and cooking procedures to learn which will produce better products.
Home Econ. 314

Mo. Flavor Preferences Affecting Consumer Choice of Poultry Meats. To test consumer acceptance and preference for (1) existing uncooked poultry meat products, (2) commercially cooked poultry meat products, (3) various packaging techniques. (4) To test impact on sales of results of (1), (2), and (3).
Agr. Econ. 315

Mont. Processing, Packaging and Shelf-Life of Fresh Dressed Poultry. To learn (1) if the addition of fat to a diet will effect shelf-life of poultry; (2) what effect temperature of scalding water has on shelf-life; (3) effect the addition of antibiotics and bactericides (as chlorine compounds to cooling water) prior to packaging has on shelf-life. (4) Study various types of packaging in relation to shelf-life.
Poultry MS 997

Meat Investigations (Continued)

Ohio Methods of Maintaining Quality in Poultry Products. B. Poultry Meat. 1. Shelf Life of Fresh Slaughtered, Unfrozen Poultry. To determine keeping quality (shelf life) of ready-to-cook cut-up poultry when: (1) poultry has been fed high level antibiotics; (2) held at different temperatures; (3) ice packed and in chilled air; (4) dipped in chlorine, antibiotic, and other solutions; (5) dipped in boiling water, hot stabilized oil, and adhesive dips containing germicide; (6) packaged in vented and airtight containers; (7) repeated freezing and defrosting.
Poultry Sci. 74 (NCM-7)

R. I. Costs Associated with Recent Technological and Organizational Changes in Marketing Poultry Meat Products. Learn effect on marketing costs of methods and procedures of providing consumer services in marketing of poultry meat products.
Agr. Econ., Poultry M-109 (NEM-17) Coop. AMS

S. C. Investigation of Methods for Increasing the Utilization of Poultry. Increase potential for use of poultry through development of ready-to-eat or prepared items.
Food Technol., Human Nutr., Poultry 421

Wash. Cooling and Freezing of Poultry Meat. To learn (1) cooling and freezing rates for poultry; (2) differences in appearance of poultry cooled and frozen by various methods; (3) weight changes in fresh dressed poultry meat as influenced by methods of cooling and freezing; (4) effect of different methods of packaging poultry as an influence on freezing rates; (5) amount of moisture loss during thawing of meat as influenced by cooling and freezing methods; (6) tenderness as affected by cooling, freezing, and thawing treatments.
Agr. Econ. 1275

Physiology

Md. Fertility Studies with Chickens and Turkeys. To study (1) possible effect of some nitrofurans and enheptin on the fertility of chickens and turkeys, and (2) effect of certain exogenous hormones on sperm transport and viability.
Poultry Husb. M-33-j

Minn. Physiological Factors Involved in Diet Selections in Poultry. Groups of chickens, hens and turkeys will be fed similar diets under controlled conditions to determine degree to which they can distinguish diets adequate or inadequate in respect to important nutrients, and influence of taste and vision on acceptability of various feeds.
Poultry Husb. 2306

Miss. The Growth of the Bursa of Fabricius and its Relationship to the Adrenal Gland. (1) Characterize growth of bursa and adrenal gland in an open-bred strain of White Leghorns, an inbred strain, New Hampshires, turkeys and ducks. (2) Study relationship between bursa and adrenal within each "kind" of bird.
Poultry Sci. HM-10

N. C. An Investigation of Mortality in Chicken and Turkey Embryos and of the Effects of Certain Conditions Prior to and During Incubation on Mortality. Learn (1) effect of holding time of chicken and turkey eggs upon embryo mortality, (2) if a relation exists between the peak of mortality that occurs at 3 days of incubation and that which occurs at 19 days of incubation in chicken eggs, and to investigate any relation between two peaks of mortality and mortality through rest of incubation period; (3) effect of various incubation temperatures and relative humidities on embryo mortality; and (4) if embryo mortality is affected by interactions between lines of chickens and treatment of eggs before and during incubation.
Poultry 101

Ohio The Physiology of Stress in Turkeys and Chickens. (1) Develop criteria for measuring intensity of stress in chickens and turkeys. (2) Learn specific steroids produced by adrenal cortex and study quantities of these steroids released under influence of types of stressors. (3) Develop techniques for measuring sensitivity of tissues to adrenal cortical steroids under influence of various stressors.
Poultry 185

CHICKENS

Breeding

Ala. A Study of the Effect of Selection on Interval Length between Successive Eggs in the Domestic Fowl. (1) Investigate heritability of intensity of lay as measured by interval between eggs. (2) Study relationship between interval length and total egg production.
Poultry Husb. 116

Ala. Blood Groups and Genetic Correlations Related to Specific Diseases of the Chicken. Learn: (1) blood group antigens in several populations of chickens differing in natural resistance to lymphomatosis and coccidiosis; (2) relation of blood group antigens to inheritance of resistance to lymphomatosis and coccidiosis; (3) genetic correlations among degrees of natural resistance to diverse etiological agents under uniform environment and uniform technical procedures.
Poultry Husb. 117

Ala. Decreasing Mortality in the Domestic Fowl by Breeding. To (1) develop strains of chickens in which mortality through first laying year is low; (2) determine effectiveness of using resistant strains in strain and breed crosses as a means of reducing mortality; and (3) determine effectiveness of mass selection as a means of maintaining resistance of a strain developed by progeny testing.
Poultry Husb. 416

Ala. Breeding and Immunizing Chickens for Resistance to Coccidiosis. To breed strains resistant to cecal coccidiosis (*Eimeria tenella*) and to develop a method of immunizing baby chicks against that disease.
Poultry Husb. 511

Ariz. Establishing a Heat Resistant Strain of White Leghorns. To establish the "A" strain of White Leghorns which will be heat tolerant and suitable for future work in breeding and nutrition.
Poultry Husb. 363

Breeding (Continued)

Ark. Investigating Genetic Differences Between Broiler Stocks. To (1) measure genetic differences between various strains and strain-crosses for hatchability, viability, feed conversion, growth rate, carcass yield, keel length, breast angle, USDA carcass grade for fleshing, finish, and absence of pin-feathers; and also egg production, egg size, feed conversion, adult viability, adult body weights at standard ages. (2) Learn differences in overall performance for economic traits between pure strains and strain-crosses. (3) Evaluate procedures in experimental design for random sample testing of poultry.
Anim. Indus., Vet. Sci. 169 (S-7)

Ark. Breeding Systems and Selection Methods for the Genetic Improvement of Broiler Chickens. To (1) compare methods of breeding for genetic improvement of broilers, including theoretical examination of genetic and environmental relationships between several traits such as fertility, hatchability, viability, early growth rate, feathering, live body and dressed carcass scores and yields, sexual maturity, body weight at housing, and part-year and total egg production; and (2) apply systems of breeding and selection methods to improvement of broiler strains for essential traits above by means of a. selection within closed purebred flocks on individual, family and progeny performance, and b. selection in purebred lines for specific combining ability with lines from same or other breeds.
Anim. Indus., Vet. Sci. 372 (S-7) Coop. ARS

Storrs (Conn.) The Origin and Mode of Expression of Hereditary Characters in Fowl, with Special Reference to the Developmental Processes which Produce Hereditary Variations and the Mode of Inheritance of New Genetic Factors. To determine (1) how new and desirable genetic traits can be produced in breeds of livestock, (2) way of hereditary transmission of new traits when they make their first appearance, (3) how such new traits are expressed during development, and (4) what new results can be obtained from the interaction of already existing genetic traits.
Anim. Genet. 129

Breeding (Continued)

Storrs (Conn.) The Evaluation of Genetic Relationships Among Egg Production and Meat Production Characters. To (1) establish and maintain random bred population of heavy breed chickens with wide genetic background for meat and egg production characters; (2) determine genetic correlations between egg and meat production characters; (3) determine effect of selection for specific characters of meat and/or egg production on associated characters; and (4) ascertain what progress can be made toward incorporating meat and egg production characters in same strain of chickens by simultaneous and identical selection for individual pairs of two types of characters.
Poultry, Anim. Dis. 214 (NE-6) Coop. ARS

Ga. A Comparison of Various Breeding Systems in the Development of Strains of Chickens with Improved Broiler Characteristics. (1) Learn relative merits of individual selection, reciprocal recurrent selection, and hybridization in breeding for increased rate of growth, fertility and hatchability, livability, and egg production. (2) Evaluate definite crosses between some of the most promising strains.
Poultry Husb. 335 (S-7)

Ga. Establishment and Maintenance of a Poultry Testing Station for the Southern Region. To (1) produce chickens genetically superior in meat production, egg production, and livability under southern conditions; (2) test and evaluate the relative efficacy of inbreeding and hybridization, family testing, strain and breed crossing and recurrent selection; and (3) coordinate efforts of Southern States working toward breeding of chickens to avoid duplication of work, for exchange of stocks, for planning of new approaches, and for combined cooperation with other regions and ARS in testing of new strains.
Poultry Husb. 336 (S-7) Coop. ARS

Hawaii An Attempt to Develop Inherently Superior Poultry (Both Eggs and Meat) Adapted to Hawaiian Conditions. To produce efficient layers and superior meat birds, synthesize useful inbred lines of New Hampshires, measuring the combining value of inbred lines of poultry in an unusually uniform environment, and provide commercial poultrymen with superior stock.
Poultry Husb. 421

Breeding (Continued)

Ill. Evaluation of Individual Selection for Improving Egg Production in Chickens. (1) Evaluate rate of improvement for egg production attained by selection based on individual performance. (2) Measure correlated responses in other traits accompanying selection. (3) Estimate relative efficiency of partial and complete yearly production records as selection criteria. (4) Participate in North Central States Cooperative Regional Poultry Breeding Project, compare rates of progress attained by chickens from same genetic source but under different selection methods, and measure interactions of heredity and environment as they affect performance of chickens.
Anim. Husb. 20-384 (NC-47)

Ind. Evaluation of Mating Systems and Selection Methods in the Improvement of Egg Production Strains of Poultry. (1) Compare efforts of closed flock mating reciprocal recurrent selection, and use of inbred lines in hybrids and topcrosses on rate of genetic improvement and on maximum genetic performance attained. (2) Develop improved methods of genetic evaluation of individuals for specific traits. (3) Estimate genetic parameters as heritability and genetic correlations for various populations of poultry and for various traits. (4) Evaluate theoretical concepts of population genetics.
Poultry Sci. 370 (NC-47) Coop. ARS

Ind. Genetic Studies of Certain Apparent Mutant Conditions in the Fowl. To (1) determine mode of inheritance of apparent mutant conditions, (2) study physiological development of condition for information on action of genes, and (3) determine genetic linkage relations of such genes.
Poultry Sci. 411

Ind. A Study of Hybrid and Crossbred Avian Embryos in the Growth of Certain Viruses and Other Infectious Agents. To determine (1) and concentrate genetic differences in embryo growth rate and other physiological traits; and (2) if genetic and physiological differences in embryo growth are related to vaccine production potentialities of avian embryos.
Poultry Sci. 716 (NC-47) Coop. ARS

Breeding (Continued)

Iowa Genetics of Disease Resistance in the Domestic Fowl. To (1) create inbred strains consistently resistant or susceptible to fowl leukosis and fowl typhoid, (2) study inheritance pattern of multiple natural resistance to several diseases, (3) determine relation between natural resistance to fowl typhoid and leukosis, (4) clarify mechanisms by which genes work to create a bird resistant or susceptible to these diseases, (5) analyze relation of genetic resistance to a disease and resistance which may be acquired through vaccination, and (6) utilize inbred lines formed to develop double cross hybrids which combine disease resistance as well as high economic performance.
Genet. 1125 (NC-47)

Iowa The Effect of Inbreeding in the Domestic Fowl. To (1) learn if combinability of lines is related to degree of inbreeding in the lines crossed, (2) develop inbred lines segregating for single major gene effects, and (3) learn influence of visible character genes on important economic performance factors in chickens.
Poultry Genet. 1039 (NC-47)

Iowa Selection Limits of Economically Important Characters in the Fowl. Learn (1) limits of selection for single traits in closed flocks; (2) degree to which genetic improvement as predicted from a knowledge of heritability and the amount of selection applied agrees with observed responses through selection for a single trait; (3) correlated responses of characters associated with a given trait for which selections are made; (4) consequences of relaxing selection performance factors.
Poultry Husb. 1326 (NC-47)

Kans. The Effects of Various Breeding Systems on Quantitative Traits of Chickens and Methods of Predicting and Testing Performance. (1) Study effects of alternate breeding systems on quantitative traits of chickens. (2) Learn if certain techniques involving antigen-antibody reactions between individuals of different strains can be used to predict the amount of heterosis to be expected from crossing genetically divergent strains. (3) Estimate importance of social status and inter-strain competition on the productivity of the individual, strain, and breed.
Poultry Husb. 381 (NC-47)

Breeding (Continued)

Ky. Testing Breeding Methods for Meat Characters in Chickens. To test the relative merits of various methods of breeding to improve economic characters in chickens, especially to meat qualities. Breeding methods will include: 1. selection within closed purebred flocks on family, progeny-test basis; 2. recurrent and reciprocal selection; 3. cross-breeding and back-crossing; and 4. inbreeding and hybridization.
Poultry 652 (S-7)

La. The Relative Efficiency of Convergent Improvement, Crossbreeding and Backcrossing for the Production of Broiler Stock. To (1) test and evaluate relative efficiency of a. convergent improvement, b. crossbreeding, and c. backcrossing for production of broiler chickens; and (2) improve reproductive and broiler qualities of Cornish fowl.
Poultry Indus. 825 (S-7)

La. Breeding Improvement of Chickens. The Evaluation of Breeding Systems for Reproductive Qualities with Emphasis on Hybridization. To (1) evaluate breeding systems for the production of chickens genetically superior in egg production under southern conditions; and (2) test and evaluate relative efficiency of a. inbreeding and hybridization, b. family testing, c. strain and breed crossing, and d. other promising new approaches for production of these stocks.
Poultry Indus. 826 (S-7)

La. The Possible Inheritance and Means of Elimination of Melanic Pigment Found in the Internal Membranes of the Abdominal Region of Broilers. Learn inheritance of this factor so that steps may be taken by breeders to eliminate this trait from broiler stock.
Poultry Indus. 915

Maine The Relation of Body Size in Poultry to Egg Production and the Growth Rate of their Progeny. (1) To determine effect of selection for body size upon rate of lay, amount of feed needed to produce a dozen eggs, and other economic factors; and (2) to determine if there is a relationship between body size of the parents to rate of growth of the offspring to broiler age.
Poultry 41 (NE-6) Coop. ARS

Breeding (Continued)

Md. Genetic Control of Serum Cholesterol Level. (1) Establish strains differing markedly in serum cholesterol levels; (2) learn if such levels bear a relationship to economic characters and yolk cholesterol; and (3) learn cause and effect relationship between cholesterol levels and other physiological traits.
Poultry Husb. M-33-e (NE-6)

Minn. Genetic Reactions in the Fowl as Influenced by Selection Methods and Systems of Breeding. -- 1. The Development and Performance of Inbred Lines of Fowl. 2. The Value of Inbred Lines as Inbred Stocks. 3. The Value of Inbred Lines and Various Types of Crosses in a Line Crossing Program. To (1) breed superior strains of fowl through development of inbred lines; (2) determine value of inbreeding as an aid to selection, and effect of inbreeding on performance; (3) determine best way to develop inbred lines, including techniques of breeding and methods of mating; (4) determine feasibility and value of crossing inbred lines for improved performance and make comparisons of performance and efficiency of various types of crosses; and (5) find reliable short time tests and prediction methods to evaluate performance of crosses from information on lines themselves and early crosses.
Poultry Husb. 2301 (NC-47)

Minn. The Improvement of Quality and Productiveness of Poultry Through Breeding. To (1) secure information on breeding techniques of value to researchers and industry; (2) test existing stocks and later develop stocks from various strains for possible use by the industry -- secure and assemble information on techniques of formulating various types of crosses and techniques of hybridization.
Poultry Husb. 2310 (NC-47) Coop. ARS

Miss. Use of Reciprocal Recurrent Selection to Improve the Reproductive Efficiency of White Leghorns. Learn value of reciprocal recurrent selection as a means of increasing reproductive efficiency of White Leghorns.
Poultry HM-2

Miss. Improvement of Breeding Stock, Primarily for Broiler Quality, Through Different Systems of Breeding. Test and evaluate breeding systems as they concern broiler quality: inbreeding and hybridization; crosses of lines selected especially for egg production and lines for meat production; crosses of breeds and strains.
Poultry HM-1, RRFM-1 (S-7)

Breeding (Continued)

Mo. Breeding Chickens for Egg Production by Recurrent Selection and Intraflock Selection Methods. Learn (1) value of recurrent selection as a breeding method for increasing egg numbers and changes in other quantitative economic traits when selection is based on egg numbers; (2) breeding progress by family and individual selection, influence of related selection in intraflock population of S. C. White Leghorns, changes in other economic traits of intraflock population when mass selection is made on egg size.
Poultry 164 (NC-47)

Nebr. Evaluation of Breeding and Selection Methods for the Improvement of Egg Production in Chickens. (1) Study efficiency of various breeding and selection methods for improving egg production. (2) Derive and develop more effective methods. (3) Develop lines of chickens with superior germ plasma which will produce chickens genetically superior in economic characteristics. (4) Study genetic parameters of various economic characteristics and estimate amount of genetic improvement in these characteristics under varying systems of breeding and selection.
Poultry 424 (NC-47) Coop. ARS

N. H. Recurrent Selection vs. Closed Flock Selection for Improving Broiler Qualities. To learn (1) effectiveness of recurrent selection and closed flock selection as methods for making genetic progress; (2) estimates of heritability of early growth rate and estimate genetic correlations between early growth rate and other economic characters; (3) effect of 2 methods of selection for broiler qualities on certain other characters, and on genetic parameters being studied.
Poultry Husb. 92 (NE-6) Coop. ARS

N. H. Basic Problems in Random Sample Testing of Broiler Strains of Chickens. To learn for each of the following characters measured on (1) individual chickens, the optimum numbers of individuals per pen and number of pens per strain required to show genetic differences between strains: 10-week body weight, breast width, New York dressed grade, dressing percentage; (2) the pen as the unit, optimum number of pens per strain and number of tests needed to show genetic differences between strains: feed conversion -3#- 10 weeks, pen weight - 10 weeks, respiratory score. (3) Estimate within-location strain x test interaction, and estimate repeatability of strains in different tests for each character studied. (4) Learn effect of intermingled rearing on expression of certain economic characteristics of meat-type chickens.
Poultry Husb. 123

Breeding (Continued)

N. H. The Inheritance of Feed Utilization Efficiency in Poultry. (1) Investigate the use of relative food intake as a measure of feed used for growth. (2) Compare food intake with calculated efficiency and decrease in efficiency as measures of economy of gain.
Poultry Husb. 125

N. J. Heritability of Blood Pressure in the Fowl. To (1) develop strains showing high and low blood pressure; (2) correlate blood pressure with mortality and reproductive ability; and (3) determine if increased blood pressure with age is a reliable criterion of the overall aging process.
Poultry 561 (NE-6)

N.Y.C. Development and Maintenance of a Random Bred Population of White Leghorns. To (1) establish random bred population of White Leghorns to serve as source of control stock with constant genetic value; (2) maintain this population as source of stock for other stations in Project NE-6, and commercial breeders who want to evaluate their breeding program; and (3) use random bred population for estimating genetic parameters such as heritabilities and genetic correlations and to study fundamental population genetic as it applies to this population.
Poultry Husb. 145 (NE-6)

N. C. Developing Inbred Lines of Single Comb White Leghorns and Their Utilization in Hybrids Resistant to Leukosis. To (1) further inbreed the North Carolina Experiment Station Single Comb White Leghorn Line, NC 1, and to develop other inbred lines from different origins to learn more of the effects and responses of strains to inbreeding; and (2) produce hybrids, by crossing these lines or lines from other stations, with superior performance and resistance to leukosis.
Poultry Sci. 95 (S-7) Coop. ARS

N. C. Use of the Backcross Breeding Method in the Establishment of a Dominant White Either for Use as a Purebred or in Cross Combination for Broiler Production. To (1) constitute a pool of genetic material from which potentially a dominant white-feathered, rapid growing, fast feathering, prolific broiler strain may be incorporated, using backcross method; (2) select superior birds for matings on individual and family basis from genetic material; and (3) explore possibility of crossing new development with other strains for possible use of heterosis for more efficient production.
Poultry Sci. 96 (S-7) Coop. ARS

Breeding (Continued)

N. Dak. Economic Qualities of Outbred, Inbred and Hybrid Chickens. To (1) continue to develop inbred lines of chickens and expand developed inbred lines showing favorable economic characteristics; (2) test ability of various inbred lines, developed at this station, to combine with other inbred and pure bred lines; (3) determine heritability of characters of economic importance; and (4) compare performance of hybrids and topcrosses produced at this station with pure breds and commercial hybrids.
Poultry Husb. 14-1 (NC-47)

Ohio Genetics of Endocrine Function in Poultry. To (1) determine influence of sire and dam upon comb growth of progeny; (2) measure relative influence of non-genetic maternal and other environmental effects and specific sire-dam interactions; and (3) assay tissue sensitivity as well as activity of thyroid, gonads, and pituitary in relation to genetics of the individuals.
Poultry Sci. 105

Ohio Selection and Mating Methods for Poultry. To (1) test value of modified diallel mating systems for measuring relative breeding value of individual sires and dams, and (2) compare relative merits of strains, strain crosses, crossbreds, and incrosses when used as sires or dams.
Poultry Sci. 130 (NC-47)

Okla. The Effect of Selection on Fertility and Hatchability. To study effect of selection on fertility and hatchability and effect of such selection in body weight, mortality, egg production and egg quality.
Poultry Husb. 860

Okla. The Effect of Selection on Body Size and Related Characters in Chickens. To (1) study effects of selection on body size at broiler age and effect of such selection on related characters; and (2) determine physiological differences between fast and slow growing chickens.
Poultry Husb. 865 (S-7) Coop. ARS

Breeding (Continued)

Pa. Maintenance of Economic Qualities of Chickens by Progeny Testing Sires Only. To (1) measure change in economic qualities brought about by shifting breeder selection from family-individual basis to a sire basis; and (2) determine effectiveness of progeny testing sires only in maintaining satisfactory production characters and viability.
Poultry Husb. 1181

Pa. The Heritability of Certain Egg Quality Characters, the Genetic Correlation Between Them, and the Relation of Such Characters to Reproduction. To (1) measure heritability of certain egg quality characters; (2) determine genetic correlation between various factors affecting egg quality; and (3) study relationships existing between certain egg quality characters and other reproductive characters.
Poultry Husb. 1199-A (NE-6)

P. R. Improvements of the Poultry of Puerto Rico. -- 7. Breeding of a Commercial Egg-Laying Poultry Strain. To develop a poultry strain for egg production under the conditions prevalent in specialized poultry farms.
Anim. Husb. 51 (S-7)

S. C. Development of More Efficient Broiler Strains of the White Plymouth Rock and New Hampshire Breeds of Chickens. To continue breeding, selection, and development of White Plymouth Rock and New Hampshire breeds for desirable meat type, efficiency of feed utilization, and increased egg production.
Poultry Husb. 8 (S-7)

S. Dak. Effects of Inbreeding Upon Economic Qualities of Chickens. (1) Develop and maintain inbred lines which can produce superior performing offspring. (2) Study potential uses of inbreds -- when combined with other inbreds or with non-inbred stocks. (3) Study the predictability of combining ability for economically important characters in inbred lines.
Poultry Husb. 179 (NC-47)

Tenn. Improving Chickens Through Breeding. To study (1) value of inbreeding, individual selection, crossing and hybridization upon resistance of chickens to parasitic infestation, their livability, rate of growth, reproductivity, and egg production; and (2) study performance of stock so developed with other stock, under standard conditions at a central testing laboratory.
Poultry 143 (S-7)

Breeding (Continued)

Tenn. Improvement of Broiler Qualities through Cross Breeding and Selection. (1) Develop a rapid growing strain of Cornish chicken that combines well with other breeds to produce a rapid growing, broad breasted broiler. (2) Improve productiveness of stock derived from Cornish breed.
Poultry 149

Tex. Use of the Gene Transfer Technique in Breeding for Improved Meat Type and Egg Production in Chickens. To (1) evaluate through comparisons with other systems of breeding the gene transfer technique as a means of improving the performance of meat and egg strains; (2) test combinability of strains developed by gene transfer technique; and (3) explore use of gene transfer technique for improvement of inbred lines which are being developed for use in crossing and hybridization.
Poultry Husb. 604 (S-7) Coop. ARS

Va. Inbreeding and Selection as Methods for Improving Broiler Production. To determine extent to which close but flexible inbreeding and rigid selection can be used to develop purebred strains of domestic fowl which are more efficient in production of broilers than strains now available.
Poultry Husb., Anim. Path. 86016 (S-7) Coop. ARS

Va. Quantitative Inheritance of Broiler Characteristics. (1) Test validity of current theory of genetic correlation using characters under study. (2) Measure changes in other traits while direct selection is being made for one specific trait. (3) Obtain genetic parameters for several traits of economic importance in broiler breeding and broiler production. (4) Construct selection indexes applicable to a broiler breeding program. (5) Measure effects of relaxed selection.
Poultry Husb., Anim. Path. 86100 (S-7) Coop. ARS

W. Va. Simplified Methods of Improving Initial Interior Egg Quality and Shell Quality Through Selective Breeding. To (1) determine feasibility of improving initial interior egg quality by selecting breeding hens from observations on broken out eggs; (2) find feasibility of improving egg shell quality by determining specific gravity of quantity of eggs at one time, then select hens that produce eggs with specific gravity over standard; and (3) determine possibility of reducing incidence of blood and meat spots by selective breeding.
Anim. Husb. 44

Breeding (Continued)

W. Va. Breeding for Efficient Production of Eggs and Meat. To (1) select families of meat-type chickens for improved genetic capacity for productive characteristics; (2) determine effect of continued mass selection for improved broiler qualities on reproductive characteristics; and (3) study methods to combine high egg producing capacity with superior broiler qualities, using strains from 1 and 2 above, and breed crosses.
Poultry Husb. 74 (NE-6)

Wis. The Development of Lines of Chickens Possessing Desirable Economic Qualities by Inbreeding Accompanied by Rigorous Selection. To (1) develop true breeding lines possessing a maximum number of characters of economic importance; (2) eliminate undesirable inheritance as soon as detected; and (3) study differences between closely related inbred families as respects growth, reproduction, behavior, incidence of lethals, etc.
Poultry Husb., Genet. 726 (NC-47)

Wyo. Developing Breeds of Chickens Suitable for High Altitude Poultry Farms. To develop (1) breed of Dominant White heavy breed chickens which combine high egg producing ability, hatchability, growth rate, feather growing, and superior market performance; (2) breed of Red chickens which are superior for growth rate, market conformation, and feather growth, and which also have reasonably good egg production and hatchability; and (3) above breeds to cross well with each other in order that offspring will be superior to parent types in production factors.
Anim. Prod. 449

Wyo. Developing Strains of Chickens on the Basis of Elevation of Hatching. To (1) establish lines of chickens from same foundation stock which will hatch at elevations of 4100, 7200, and 9500 feet elevation; (2) test hatchability of these lines at each elevation, and determine if lines capable of hatching at highest elevation are superior in hatchability at lower elevations; and (3) determine differences in egg production and mortality of lines.
Anim. Prod. 515

Wyo. Developing a Pea-Comb Variety of White Leghorns. To (1) determine if Pea-Comb Leghorn pullets have production advantages that are similar to those of dubbed Single Comb Leghorns; and (2) develop a pea-comb variety of White Leghorns.
Anim. Prod. 580

Economics

Ark. An Economic Study of Market Egg Production in Arkansas. (1) Learn input requirements of land, labor, and capital for production of market eggs by caged-layer egg production and the floor flock method of egg production. (2) Obtain output information from farmers and from experimental results. (3) Assemble price information related to market egg enterprise. (4) Integrate physical input-output information with prices to learn least cost method of producing market eggs.
Agr. Econ., Rural Sociol. 469

Ill. Inputs, Returns, and Efficiency in the Operation of Poultry Laying Flocks on Illinois Farms. To (1) ascertain costs and income of poultry enterprise when carried on as a semi-commercial or commercial enterprise; (2) secure information on kinds and amounts of inputs in poultry production; (3) ascertain how poultry products are marketed on farms studied and influence of kind of outlet on costs; and (4) study labor efficiency as related to size of enterprise, practices, equipment and arrangement.
Agr. Econ. 05-305 Coop. ARS

Maine Social and Economic Implications of Vertical Integration in the Maine Poultry Industry. Learn (1) sociological characteristics of persons attracted to contract poultry production; (2) crucial factors in success or failure of grower-processor relation under contract system; (3) effect of growth of integration in poultry industry on community life within the State.
Agr. Econ. 116

Mass. The Structure and Relationship of Freight Rates on Feed to Poultry Feed Prices in the East. To determine (1) influence of freight rates structure on feed moving into eastern broiler-producing areas; (2) relationship of freight rates to feed prices, methods of pricing and organization and structure of the feed industry; (3) influence of transportation factors on location and scale of feed mixing plants and methods and channels of feed distribution; and (4) influence on (1), (2), and (3) of important features of transportation situation, e. g., transit privilege for rail movement, importance of trucking, and influence of waterways.
Agr. Econ. 42 Coop. USDA

Economics (Continued)

N. C. Appraisal of the Competitive Position of Poultry and Poultry Products Produced in the South. To (1) determine seasonal patterns of prices of eggs and poultry meat in selected major urban centers of the Mid-western, Eastern and Southern markets, and use the information to determine whether there are significant differences in seasonal price variation among markets and will be useful in guiding marketing decisions; (2) identify present geographic areas that supply eggs and poultry meat to markets selected above in order to determine supply conditions in areas competing for the selected markets; (3) determine costs of transporting eggs and poultry meat from present and potentially competing geographic areas of supply to selected markets, necessitating estimation of functional relations of losses in quality and volume of eggs and poultry meat to (a) distance from producer to market and (b) time in market channels; (4) ascertain wholesale and retail prices of poultry feed and chicks and prices of labor and other resources used in production of eggs and poultry meat in competing areas of supply; and (5) estimate effects of changes in prices of eggs and poultry meat in relation to prices of feed, labor, etc., upon supply of eggs and poultry meat in areas competing to supply particular markets.
Agr. Econ., Poultry HM-5 (SM-15) Coop. AMS

N. C. Economics of Broiler Production. (1) Estimate rates of substitution between feed nutrients and effect of different combinations of nutrients on rate of gain and cost of production of different aged broilers. (2) Design and test linear programming models for combining selection of most economical combination of nutrients and the least cost feedstuff sources of these nutrients for different price and mill situations. (3) Obtain physical input data applying to different broiler flock sizes and estimate from this the minimum cost combinations of equipment for different sized operations.
Agr. Econ. H-145

Utah The Effect of Certain Management Practices on Costs and Returns from Poultry and Egg Production. Measure changes in input-output relationships in production of poultry and eggs. (2) Evaluate effectiveness of certain management practices used in the production of poultry and eggs.
Agr. Econ. 502

Economics (Continued)

Vt. Economic and Managerial Trends in Vermont Poultry Production. To (1) study production practices, costs, and returns to commercial poultrymen; (2) show changes since 1948; and (3) provide basis for suggestions by agricultural leaders.
Agr. Econ. 70

W. Va. The Economics of Broiler Production on West Virginia Farms. Learn extent to which production factors influence broiler costs and returns. Analyze effects of levels of efficiency of management. Develop theoretical situations with varying price-cost combinations to predict probable effect from various sources and combinations of production factors. Identify principal reasons for discontinuing production.
Agr. Econ., Anim. Husb., Poultry 85

Egg Investigations

Idaho Egg Washing Techniques and their Application to Market Eggs. (1) Test and evaluate various egg washing methods. (2) Learn percentage of loss during storage of washed eggs as compared to unwashed controls. (3) Study decline of interior quality due to washing. (4) Test and evaluate use of antibiotics and sanitizers in maintaining quality and preventing microbial deterioration. (5) Study practical methods of washing for eliminating storage spoilage.
Poultry Husb., Vet. Sci. 321

Kans. To Develop and Improve Methods of Preserving Eggs or Egg Products and to Prevent Bacteriological or Physical Deterioration. To determine causes of deterioration of eggs and egg products during processing and storage and to develop means of increasing storage life, shelf life, and wholesomeness of these products.
Bact., Poultry Husb. 388

Kans. Nutrition and Biochemistry of the Quality and Composition of Eggs. Study nutritional factors influencing quality of eggs, and investigate composition and characteristics of yolk protein of eggs produced under various environmental conditions.
Poultry Husb., Chem. 502

Kans. Biochemistry and Physiology of Egg Formation. Study relationship of (1) high-phosphorus high-lipid containing components of blood serum to egg formation; (2) various endocrine secretions to fluctuations in the amounts of these substances. (3) Study effects of natural and artificially induced variations of light and temperature on these substances and on egg formation.
Chem., Poultry Husb. 503

Ky. Some Optimal Hen Replacement Rates for a Continually Operating Egg Production Enterprise. Synthesize the probable distribution of egg production of individual hens through time and learn optimal culling rates for a continually operating poultry enterprise.
Agr. Econ. 40

Ky. Study of the Causes and Prevention of Rots and "Blow-up" of Hatching Eggs. To study methods of control and prevention of rots and the spread of rot forming organisms in the incubator and in egg cases during holding period.
Poultry 654

La. Methods of Cleaning Market Eggs. Compare effect of eggs washed in agitator type washer, rotating brush type, and dry-cleaning upon the following: breakage of eggs during cleaning process; immediate effect upon interior quality due to handling, removal of cuticle and subsequent loss of moisture, keeping quality up to 8 months in storage. Learn effect of oiling and thermo-stabilizing on keeping quality of washed stored eggs.
Agr. Econ., Poultry Indus. 871

Egg Investigations (Continued)

Md. Market Quality of Eggs as Influenced by Antibiotic Treatments. To study (1) effect of either single or synergistic combinations of antibiotics on keeping quantities of market eggs; (2) resistance of antibiotic-treated eggs to artificial infections with a strain of Pseudomonas fluorescens, an organism associated with "green-rot"; (3) duration of antibiotic activity in treated eggs.
Poultry Husb. M-46 Coop. ARS

Md. Development of Improved Objective Methods for Detecting Meat Spots in the Hen's Egg as Related to Quality in Egg Marketing. (1) Study basic composition of meat spots, so characteristic components can be identified. (2) With results from (1) develop a rapid and reliable objective method or device for their detection, which can be adapted for use in mechanized processing lines to eliminate hand operations.
Poultry Husb. M-51

Mich. Effects of Washing and Freezing Eggs on Quality. To study (1) and evaluate effects on egg quality of process of washing eggs in an oil emulsion solution in which a sanitizer and detergent have been incorporated; (2) possibilities of preserving frozen shell eggs.
Poultry Husb., Vet. Med. 81

Mich. Chemical Changes in Shell Eggs During Storage. To study changes in following during storage: (1) carotene, vitamin D, a-tocopherol, vitamin K, ascorbic acid, and thiamine; (2) chemical and physical characteristics of egg proteins and distribution of egg proteins between white and yolk; (3) amino acid content of egg proteins; (4) lipids.
Agr. Chem., Poultry Husb. 832

Mich. Cause and Prevention of Blood and Meat Spots in Eggs. Learn (1) exact source of blood and meat spots; (2) what factors affect the occurrence of blood and meat spots; (3) practical means of reducing incidence of blood and meat spots.
Poultry Husb. 836

Egg Investigations (Continued)

Minn. Factors Affecting Quality Loss of Minnesota Eggs in Market Channels. (1) Establish degree of variability and extent of quality loss in shell eggs of known history and initial quality under ideal and unfavorable holding conditions; (2) learn characteristics of an egg which enable it to better maintain its high initial quality in market channels by correlating quality loss with initial interior quality, shell quality, season, and source of eggs; (3) obtain a measure of economic loss incurred by shippers, receivers, and other segments of the industry from failure of shell eggs to undergo a uniform and a minimum amount of change while in market channels; and (4) secure data on objective measurements of egg quality, sampling techniques, and prediction tests for keeping quality.
Poultry Husb. 2313

Mo. Relationship of Certain Physical, Chemical, and Microbiological Properties of Eggs to the Preservation and Utilization of Shell Eggs and Egg Products. Learn (1) fundamental causes for deterioration of thick white gel structure and relation of these factors to performance of egg white; (2) effect of CO_2 on pH of white and its effect on preservation of thick white gel structure at various storage temperatures. (3) Explore importance of various handling methods and treatments toward retaining "quality" in shell eggs and egg products. Learn (4) influence of season and age of bird on shell egg quality, egg composition and functional properties of white; (5) effect of chemical additives on functional properties of egg white products. (6) Study effectiveness of fermentation techniques ("resting cell") and possible use of chemical blocking agents to retard browning reaction in whites. (7) Devise methods for modification and use of yolk and chalazal fraction of white.
Poultry Husb. 17 (NCM-7)

Mo. Care of Hatching Eggs. To (1) test value of egg washing machines for cleaning soiled eggs; and (2) test the relation of wide angles (60° and 75°) as compared to 30° and 45°; and also test effect of multiplane turning.
Poultry Husb. 40

N. H. Factors Influencing the Market Quality of Eggs on New Hampshire Farms. To determine (1) influence that shell characteristics, temperature, humidity and holding period have upon market quality and hatchability of eggs on New Hampshire farms; and (2) spoilage causing microbes and their route of entry into unmarketable eggs.
Poultry Husb. 81

N. J. The Decline in Egg Quality, with Particular Reference to Pre-Refrigeration Time and Sweating After Refrigeration. To make complete study of use of refrigeration, sweating, and egg quality on farm.
Poultry 572

Egg Investigations (Continued)

N.Y.C. Factors Affecting Market Quality of Table Eggs. A. Determine Effect of Carbon Dioxide on the Thinning of Egg Albumen. B. Determine the Cause of Shell Mottling and its Effect on Internal Quality. C. A Study of the Bacteriology of Eggs. D. Determine the Effect of Various Feed Additives on Interior and External Egg Quality. (1) Learn if an atmosphere with higher than normal amounts of CO_2 will slow down thinning of albumen. (2) Learn basic cause of shell mottling, importance of shell thickness and porosity on incidence of mottling, if there is a correlation between internal quality and egg shell mottling. (3) Study bacteria affecting egg quality with emphasis on ecology and physical and chemical factors involved in penetration of egg and learn method of control. (4) Study influence of additives to feed for specific purposes on other factors of economic and scientific importance; Learn effect on egg quality and levels at which quality is affected.
Poultry 146

Ohio Accuracy and Efficiency of Machine Candling Compared to Hand Candling of Eggs. To learn (1) efficiency of candling eggs by hand and machine as measured by: accuracy, speed, breakage, and labor saving; (2) influence of kinds and arrangements of lights on accuracy of machine egg candling. (3) Compare various egg twirling devices used on machine graders and learn their effect on interior egg quality.
Poultry Sci., Agr. Engin. 151

Okla. Physical-Chemical Studies of Egg Shell Quality. Study physical-chemical structure and mineralization pattern of normal egg shell as related to shell strength and to intensity and duration of egg production.
Poultry Sci. 1005

Pa. Shell Porosity and Quality Deterioration of Market Eggs. (1) Evaluate existing porosity determination methods in relation to quality deterioration of market eggs and seek method of greater accuracy and speed. (2) Study relation between shell porosity and quality loss of market eggs. (3) Study effect of shell treatments and storage practices on shell porosity and quality deterioration of market eggs.
Poultry Husb. 1199-D

R. I. The Influence of Selection for Blood and Meat Spot Incidence upon Albumen Score. To determine if genetic correlation exists between high or low blood and meat spot incidence and high or low albumen score.
Poultry Husb. 805 (NE-6)

Egg Investigations (Continued)

Tex. Penetration of Egg Shells and Proteolytic Decomposition of Egg Proteins by Organisms of the Genus *Pseudomonas*. To learn (1) with known species of genus *Pseudomonas*, the role of different parts of egg shell and membranes in resisting bacterial penetration; (2) type and rate of protein breakdown by single strains and mixed cultures of genus *Pseudomonas*.
Poultry, Dairy Husb. 1085

Wash. Comparative Efficiency and Acceptability of Several Methods for Preserving Quality of Shell Eggs. To learn (1) relative efficacy of thermostabilization, CO_2, oil treatment, and plastic treatment of shells in preserving interior quality of shell eggs during marketing; (2) which of above methods is most economical.
Poultry Sci., Home Econ. ES 404

Feeds and Nutrition

Ala. Protein and Amino Acid Requirements of Laying and Breeding Hens. To determine (1) minimal requirements and simplest combination of proteins to support maximum egg production; and (2) requirements of laying hen for certain specific amino acids and to determine interrelationships of requirements for amino acids.
Poultry Husb. 528

Ariz. The Nutritive Values of Southwestern Produced Feeds and Factors Affecting these Nutritive Values. Learn nature and activity of the various toxic factors in cottonseed meal.
Agr. Biochem., Poultry Sci. 258-C

Ariz. The Utilization of Arizona Crops in Chick Diets. To improve chick diets, studying extent to which Arizona crops such as milo, cottonseed meal, and barley can be used and vitamins, amino acids, and unidentified factors that may be necessary to supplement such diets.
Poultry Sci. 364

Ark. Factors in Green Feed for Improving Hatchability of Chicken Eggs. To obtain a practical method for supplying a nutritionally effective green feed to breeding hens throughout the laying season.
Anim. Indus., Vet. Sci. 167

Ark. Nutrition of Chickens for Efficient Commercial Broiler Production. (1) Learn interrelationships existing between some essential amino acids when fed to chicks and obtain information to aid in preventing imbalances (2) Study relationship of amino acid pencillamine to growth stimulating ability of penicillin when fed to chicks.
Anim. Indus., Vet. Sci. 273

Ark. Nutrition of Hens for Maximum Production and Hatchability. To (1) learn optimum energy, protein, and vitamin levels for laying hens maintained on litter and in cages; (2) study identified and unidentified factors influencing reproduction in domestic fowl, and develop diets to increase rate of reproduction.
Anim. Indus., Vet. Sci. 399

Colo. A Study of Intestinal Transit and Absorption of Radioactive Minerals and the Role of Vitamin D in Intestinal Absorption in the Domestic Fowl. To study (1) intestinal transit and absorption of radioactive Ca^{45} and other radioactive minerals, including observations on role of the ceca and other segments of the digestive tract; (2) rates of transit through digestive tract of Ca^{45} and correlation of transit to absorption; (3) mechanism of vitamin D to learn its effect on intestinal absorption and bone metabolism.

Poultry Husb. 53

Feeds and Nutrition (Continued)

Colo. Antianemic and Growth Factors as Related to Amino Acid Utilization in Chickens. Study effects of vitamin B_{12} and other antianemic and growth factors on metabolic use of amino acids under various conditions.
Chem. 88

Colo. Nutritive Requirements of Laying Hens as Affected by Individual and Breed Differences, Energy Level of the Ration, and Management. To learn (1) influence of breed and strain on nutrient requirements of birds when fed rations of different protein and energy levels; (2) nutrient need differences between cage and floor birds; (3) more completely nutritional interrelationships between dietary levels of protein, energy, vitamins, and minerals as they affect egg production and quality.
Poultry Husb. 174

Colo. Nutrient Requirements as Influenced by the Dietary Energy Level in Growing Chickens. To learn (1) influence which increased energy has on nutrient needs and interrelationships of nutrients; (2) maximal energy level at which chick will grow normally; (3) effects of breed and sex on nutrient needs.
Poultry Husb. 175

Storrs (Conn.) Nutritional Factors Influencing Productive Performance and the Efficiency of Feed Utilization of Poultry. (1) Learn: relationship of ratio of energy to protein content of rations on growth performance and carcass quality; effect of increasing ratio of energy to a fixed protein level on efficiency of feed utilization and growth; effect of increasing protein level in a ration at expense of energy and when energy level is held constant. (2) Evaluate effects of ad libitum and controlled feeding of high and low energy diets on productive performance of hens. (3) Learn vitamin requirements of laying hen as related to productive performance and efficiency of feed utilization.
Poultry Sci. 191

Storrs (Conn.) The Vitamin B Complex in Poultry Nutrition. A. Vitamin B_{12} and Protein Supplements of Animal Origin in Chick Starting Rations. To determine (1) if good quality well-balanced protein supplements need additional vitamin B_{12} to support maximum growth and feed efficiency in the chick; (2) if cereal protein concentrates supplemented with B_{12} can promote growth and feed efficiencies comparable to high efficiency rations containing animal protein supplements; and (3) possible interrelationships between B_{12}, methylating compounds, including amino acids, and other members of vitamin B complex.
Poultry Sci. 193

Feeds and Nutrition (Continued)

Del. Restricted Feeding on Pullet-Growth and Subsequent Production of Hatching Eggs. (1) Study effect of restricted feeding during rearing period on growth and development of pullets, and subsequent production of hatching eggs by New Hampshire pullets.
Anim. and Poultry Indus. 21-PI

Del. Effect and Interactions of Antibiotics, Unidentified Growth Factors and Fat in the Diet of Laying and Breeding Chickens. (1) Evaluate effects of antibiotics or antibiotic-like materials on egg production, hatchability, and well being of mature chickens. Learn (2) hen's requirements of UGF's for egg production and hatchability; (3) effects of added fat to diets of mature chickens on their egg production, hatchability, and general well being. (4) Study interaction observed by using antibiotics, UGF supplements, and feed grade fat in combination in laying diets. (5) Apply data obtained from this project to formulation of practical laying and breeding rations.
Anim. and Poultry Indus. 40-PI

Del. Identification of New Sources of Unknown Growth Factors and Their Evaluation in Broiler Diets. (1) Identify potent, naturally occurring sources of UGF's that can be used effectively by feed industry. (2) Distinguish among UGF's as they occur in fish products, milk products, fermentation products, green or dehydrated vegetable matter, and other supplements. (3) Learn most effective levels of UGF supplements to use in broiler diets. (4) Apply above to formulation of diets to be tested under commercial conditions.
Anim. and Poultry Indus. 41-PI

Hawaii Combinations of Ingredients Locally Available for Poultry Rations that May be Produced in Hawaii. To incorporate, under revised procedure, investigations of rations capable of producing optimum growth, egg production, and hatchability.
Poultry Sci. 417.2

Hawaii The Relationship of Rations Containing Hawaii-Produced Ingredients to the Microflora of the Intestinal Tract of Chickens. To (1) ascertain what effect(s) substitutions of individual Hawaii-produced ingredients may have on microflora found in feces of chicks; (2) observe representation and relative numbers of bacteria in day-old chicks prior to feeding; (3) observe changes in frequency distribution of bacteria of chicks 4 weeks of age that are fed diets containing various combinations of Hawaii ingredients; (4) attempt to correlate growth rate of chicks with numbers and kinds of bacteria; and (5) observe effect(s) of synthetic vitamin supplementation on frequency distribution of bacteria in feces of chicks.
Poultry Sci. 417.3

Feeds and Nutrition (Continued)

Hawaii A Study of Economical Starter, Grower, Layer, and Breeder Rations for Chickens Raised in Hawaii. To (1) investigate economical combinations of ingredients for chicken rations; (2) investigate possibilities of absorbing stickwater on ingredients of vegetable origin and using such materials in formulating "all vegetable" poultry diets; and (3) determine if simplified diets containing as few major ingredients as possible can economically meet nutritional requirements of chickens.
Poultry Sci. 417.4

Hawaii A Study of the Cause and Prevention of Excessive Fecal Moisture Caused by Feeding High Levels of Molasses to Poultry. To (1) study physiological phenomenon of excessive fecal moisture; (2) discover means for reducing this excessive moisture.
Poultry Sci. 417.5

Hawaii The Effect of Biochemical Fractionation Residues of Creeping Indigo on the Domestic Fowl. To (1) extract various fractions from creeping indigo and concentration of definite constituents; and (2) subject fractions to biological assay for possible toxic effects and/or growth promoting effects.
Soils, Agr. Chem., Poultry Sci. 424.1-622.4

Hawaii Biological Assay of Tropical and Subtropical Forage Crops. To determine species of forage crops, especially of the tropics and subtropics which result in either a beneficial or harmful effect on chicks.
Poultry Sci. 424.2

Hawaii A Study of the Nutritive Value of Foodstuffs in Hawaii by Means of Chemical Analyses, Microbiological Assays and Biological Experiments. To (1) assemble data on the chemical composition and nutritive values of foods used locally in order that such data may be used in evaluating the diets of various groups or individuals in Hawaii and permit comparisons with foods used and/or analyzed elsewhere; (2) furnish data as needed on local foods used for poultry and other farm animals; (3) make other occasional food analyses as requested.
Nutr. 501

Idaho Protein Supplements in Poultry Rations. To learn (1) value for growth, egg production, and reproduction of new protein supplements such as safflower meal, sunflower seed meal, cottonseed meal by improved processing, etc.; (2) essential amino acid requirements especially for egg production; and (3) role of unidentified nutrients present in fish by-products and milk products for various poultry functions.
Poultry Husb., Agr. Chem. 241

Feeds and Nutrition (Continued)

Idaho Influence of Dietary Energy Levels upon Egg Production.. (1) Study energy requirements for egg production, feed efficiency, and production costs. (2) Learn effect on feed efficiency when feeds of various energy levels are fed as pellets or crumbles. (3) Learn effect of winter temperatures on egg production and energy requirements.
Poultry Husb., Agr. Chem., Vet. Sci. 254

Idaho Unknown Chick Growth Factors Present in Fish Products, Whey and Other Materials. To learn nature of unknown chick growth factors present in fish meal, fish solubles, whey and other materials.
Agr. Chem., Poultry Husb. 260

Idaho Influence of Diet and Nutrition upon Shell Quality of Eggs. (1) study effect of antibiotics in diet at low and high levels upon blood Ca level and egg shell quality; (2) determine if increased levels of specific vitamins will increase blood Ca and egg shell quality; and (3) find value of various minor elements added to the diet upon ability of hens to produce eggs with sound shells.
Poultry Husb., Agr. Chem. 270

Ill. Nutritional Requirements for Rapid and Efficient Growth in the Young Chick. To study quantitative requirements of chick for known and unidentified nutritive factors and interrelationships among them, as measured by maximum growth and feed efficiency.
Anim. Sci. 20-316

Ill. Effect of Environment on the Vitamin Requirements of Swine and Poultry. To determine (1) extent environmental temperature and humidity modify requirements of the pig and chicken for vitamins, particularly B-complex; and (2) metabolism of the vitamins under hot and cool conditions.
Anim. Sci. 20-326

Ill. Calcium Metabolism in Chickens. To study the relation of hormone and enzyme systems to calcium metabolism, especially as it relates to egg shell formation.
Anim. Sci. 20-342

Ind. The Relationship of Certain Vitamins to Amino Acid Requirements of Young Chickens. To learn (1) methionine requirements of young chickens as influenced by choline, unidentified factor(s) in fish solubles and distiller's dried solubles, and cystine; and (2) tryptophan requirement of young chickens as influenced by certain vitamins, especially niacin.
Biochem., Poultry Sci. 472 Coop. ARS

Feeds and Nutrition (Continued)

Ind. Iodine Requirements of Animals and Factors which Influence Iodine Utilization. (1) Learn requirements of laying hens and effect of prolonged I deficiency. (2) Isolate, characterize, and determine mode of action of substances from certain feeds which modify thyroid activity of rats and young chickens.
Biochem., Poultry Sci., Anim. Husb. 832

Iowa Feed Ingredients and Nutritional Factors Involved in Early Chick Growth. To (1) determine value of concentrates of animal protein factors in different rations for chicks; (2) investigate role of manganese and other trace minerals in metabolism of chicks; (3) formulate feed rations for chicks which are more practical for average producer in Iowa; and (4) determine relationship between strains of chicks and nutritive requirements.
Poultry Husb. 1062

Iowa Nutritional Factors Affecting Egg Production and Hatchability of Different Strains of Chickens. To (1) investigate effects of feeding fish solubles, thyroprotein, animal proteins, etc., on rate of production and hatchability; (2) evaluate need for animal proteins in practical rations and possibility of concentrates of animal protein factor or vitamin B_{12} replacing a portion or all animal proteins in diet for breeding hens; (3) determine if differences exist in requirements for nutritional factors by different strains and breeds; (4) investigate relationship between environmental temperature and nutritive requirements; and (5) determine relative merit of "free choice" method of feeding.
Poultry Husb. 1063

Kans. The Role of Carotenoid Pigments and Related Compounds in Poultry Nutrition. To (1) study effects of feeding suboptimum levels of various forms of vitamin A in diet on various criteria for development and production; (2) investigate inheritance of factors affecting transfer of vitamin A from hen to egg and chick for developing more uniform strains of birds for studies of vitamin A metabolism.
Poultry Husb., Chem. 232

Kans. A Comparison of Feeding Animal and Vegetable Proteins for Broilers and Laying Hens. To compare (1) feeding fish meal, meat and bone scraps, feather tankage, soybean oil meal, peanut meal, cottonseed oil meal, and antibiotic feeding supplements for broilers; and (2) feeding fish meal, meat and bone scraps, soybean oil meal, and antibiotic feeding supplements to laying hens.
Poultry Husb. 408

Feeds and Nutrition (Continued)

Ky. Effects of Fiber in Poultry Rations. (1) Learn optimum level of crude fiber in the chick and study effects of fiber from various sources with relation to body growth, fat deposition, structural changes in digestive systems, cannibalism, feed intake, feed use, and digestibility of various components of the diet. (2) Study effects of various levels and sources of crude fiber in relation to egg production, egg weight, feed use, hatchability, cannibalism, and physiological development of pullet.
Anim. Indus. 653

Ky. The Nature of Unidentified Chick Growth Activity from Distillers Dried Solubles and Related Sources. To (1) determine effect of distillers dried solubles on early chick growth when a high-protein high-energy diet is fed; (2) compare growth stimulation from distillers dried solubles, liver residue, dried whey, alfalfa juice, alfalfa meal and fish solubles; and (3) study effect of balancing protein and energy upon growth stimulation from sources of chick growth activity.
Anim. Indus. 655

La. Optimum Interrelationship of Nutrients for Broiler Production. Learn (1) optimum interrelationship or balance of fat, carbohydrate, and protein in broiler nutrition through their effect on rate of growth, feed intake, feed digestibility, and carcass composition; (2) if certain vitamins and/or minerals involved in energy and protein utilization should be increased or decreased when a broiler ration is markedly altered in amount and source of energy and protein.
Poultry 912

La. The Effects of Hormonization of Eviscerated Yields and Market Quality of Caponettes as Compared to Broilers. (1) Compare broilers with caponettes regarding dressing percentages, market quality, and return to producers. Learn (2) most satisfactory age to administer hormones, amounts to administer, and which one is most satisfactory; (3) rate and amount of fat deposition as it might effect consumer acceptance.
Poultry 953

Maine Utilization of Maine Products as Poultry Feed. To determine the value of such materials as Maine produced grains and other vegetable materials, dairy products and marine products in poultry rations.
Poultry Husb. 7

Maine The Supplementary Value of Greases, Tallows and Oils in Rations for Poultry. Learn (1) relative value of different types of fat used in rations; (2) relative value of fat for different breeds of chickens; (3) a practical level of fat to use in rations.
Poultry Husb. 109

Feeds and Nutrition (Continued)

Md. Genetic Differences in Alkaline Phosphatase Concentration of Blood Sera as Related to Differences in Egg Production and Egg Quality. (1) Establish presence or absence of relationships between alkaline phosphatase concentration of blood sera and traits of economic importance.(2)Establish presence or absence of genetic differences in alkaline phosphatase concentration of blood sera by analysis for familial differences as well as by development of strains of birds differing widely in amount of this enzyme in blood sera. (3) If a high and a low line are developed, study nature of genetic variation in enzyme by crossing lines.
Poultry M-32-m

Md. Nutritive Requirements of Poultry. G. The Requirement of the Growing Chick for Newer Members of the Vitamin B Complex. To determine (1) requirements for newer members of the vitamin B complex by breeds of chicks commonly used in broiler production; (2) economical and practical sources of the vitamins; and (3) sparing action of ample supplies of vitamins B_{10} and B_{11} on other vitamins and feed constituents of the ration.
Poultry M-35-g

Md. Development of Improved Rations and Feeding Methods for Broiler Production. To (1) study nutritional needs of broilers kept under practical conditions; (2) continue study of effects of various growth "promotants" such as antibiotics, surfactants, etc.; (3) investigate further the influence of ration on feather condition and feed efficiency; (4) develop effective feeding methods for use in broiler production; (5) determine optimum of ratio of protein and energy in broiler starting and finishing rations; and (6) develop sound, efficient, and practical broiler ration formulas.
Poultry M-35-1

Md. Development of Improved Rations and Feeding Methods for Laying Chickens. Develop more efficient and economical rations and methods of feeding laying chickens through the application of research findings.
Poultry M-35-m

Mass. The Effect of Mineral Balance on the Requirements of Laying Chickens for Maintenance, Production and Reproduction. Learn effects of varying dietary mineral ratios on requirement of laying chickens for development and maintenance of general body health, maximum egg shell strength, production, and reproduction.
Poultry Husb. 149

Mich. Biological Functions of Certain Minor Constituents in Avian Nutrition. To study methods and mechanisms involved which improve the protein quality of raw soybeans, limiting the initial scope of the work to the function of phenyl-arsonic acid derivatives in relation to its improving protein quality and its possible interrelationship with methionine.
Poultry Husb. 26

Mich. Cause and Prevention of Egg Yolk Discoloration Resulting from Feeding Cottonseed Oil to Laying Hens. (1) Prevention of pink whites and salmon yolks by feeding the hen possible antagonists to the causative substance in crude cottonseed oil. (2) Isolation and characterization of the substance in crude cottonseed oil that causes discoloration. (3) Inactivation of or the removal of causative agent from crude cottonseed oil. (4) Mode of action of causative substance on the yolk membrane.
Agr. Chem., Poultry Husb. 63

Mich. The Requirements of the Chicken for the Essential Amino Acids and Certain Water Soluble Vitamins in Relation to Egg Production and Hatchability. To learn amino acid requirements of the adult chicken for growth and amounts of thiamine, nicotinic acid, choline and folic acid required for egg production and hatchability.
Poultry Husb. 80

Mich. The Determination of the Essential Amino Acids in Poultry Feedstuffs, and a Study of Factors Effecting their Biological Availability. To determine (1) amounts of arginine, lysine, tryptophane, methionine, cystine, phenylalanine, tyrosine, threonine, leucine, isoleucine, valine, histidine, glycine, and glutanic acid in some of the common feedstuffs used in poultry feeding; (2) biological availability of certain amino acids in some common poultry feedstuffs as measured by enzyme-microbiological assay as against acid-microbiological assay; and (3) effect of heat and other methods of processing on amino acid availability in some common feedstuffs.
Poultry Husb. 80-A

Minn. The Effect of Diet Composition on Egg Production. To determine (1) requirement of hens for known and unknown nutritive factors and (2) most economical sources of such factors through judicious use of available ingredients and commercial concentrates of various nutrients for maximum egg production with a minimum amount of feed needed for each dozen eggs.
Poultry Husb. 2312

Minn. Development of an in Vitro Method for Determining the Nutritive Efficiency of Poultry Rations. To (1) develop about 5 diets of varying nutritive efficiency; (2) determine a feed digestion method which will simulate the essential features of the chicken's digestive process; (3) evaluate digestion procedures to learn "available" protein and energy values in best accord with feeding experiment results.
Poultry Husb. 2315

Miss. Genetic Differences as Related to Nutritional Requirements of Laying Hens. To compare white leghorn and egg-type New Hampshire laying hens with respect to the following nutritional requirements: protein, calcium, phosphorus and vitamin D, fiber tolerance and energy level.
Poultry Husb. HM-3

Feeds and Nutrition (Continued)

Miss. The Effects of Different Antibiotics on the Growth of Broilers when Added as Supplements to Rations with Various Levels of Protein. To determine the combination of antibiotic and protein that will produce the best broiler most efficiently.
Poultry Husb. HM-4

Miss. A Comparison of the All-Mash and Mash-Grain Systems, with and without Grit, for Feeding Laying Hens. To learn effects of various methods of feeding laying hens on: (1) egg production and egg weight, (2) feed required per dozen eggs, (3) persistence and broodiness, (4) digestibility of dietary protein, (5) body weight and condition of bird.
Poultry Husb. HM-7

Miss. The Effect of Antibiotics on the Number of Leucocytes in Chickens and on the Differential White Blood Cell Count. Evaluate hematological and histological techniques in determining mode of action of antibiotics in growth stimulation.
Poultry Husb. HM-8

Miss. Improvement of Pigmentation in Skin and Shanks of Broilers through Feed. Learn (1) optimum quantity of pigment-producing feedstuffs, singly and in combination, that should be added to broiler rations to insure adequate carcass quality; (2) if commercial xanthophyll concentrates can be used to replace all or part of the pigment carrying feedstuffs in broiler rations; (3) effectiveness of various antioxidants in promoting deposition of pigment in skin and shanks of broilers.
Poultry Husb. HM-9

Mo. The Effect of Amino Acids, Unidentified Factors, and Agricultural By-Products on Growth and Feed Efficiency in Broilers. Study effect that supplements of crystalline amino acids, agricultural by-products, and sources of unidentified growth factors have on growth, feed efficiency, and cost of production of broilers.
Poultry Husb. 24

Mo. Unrecognized Factors or Proper Proportions of Amino Acids Required by Poultry. To determine (1) if liver, whey, yeast, fish solubles, distillers solubles, and alfalfa contain an unrecognized vitamin that is needed for optimum growth rate of chicks; (2) if there is an unrecognized vitamin that is important for hatchability of hen eggs; and (3) in what proportion essential amino acids should be present in protein to give it maximum biological value for growing chicks.
Agr. Chem. 137

Feeds and Nutrition (Continued)

Mo. Rations for Laying Hens. To study (1) effect of changing energy level of ration on productive performance of laying hens, (2) effect of unidentified nutritional factors on hatchability, and (3) effect of maternal diet on performance of progeny.
Poultry Husb. 255

Mo. The Nutritional Requirement of the Chick for Amino Acids and Unrecognized Growth Factors. To learn (1) amino acid requirements for maximum growth and feed efficiency; (2) requirement of chick for unrecognized growth factors.
Poultry Husb. 277

Mont. The Comparative Value of Common Grain Combinations in Poultry Feeding. II. For Quality, Palatability and Nutritive Value of the Market Eggs. To determine comparative value of corn, wheat, oats and barley on cooking qualities and palatibility and nutritive value of market eggs.
Poultry Indus. MS-813

Mont. The Effect of Nutrition on the Growth and Development of Chicks for Laying Flock Replacement. To determine influence of nutrition on growth rate, livability, feed efficiency and general quality of New Hampshire and White Leghorn chicks used for flock replacement, including (1) to determine the value of vitamin B-complex supplement added to chicken mash mixtures containing a simple and complex carbohydrate base; (2) compare rations differing only in whole grains fed; (3) compare mixtures of different ratios of wheat and barley; (4) compare pearl (dehulled) barley with ordinary barley; and (5) study value of a complex mineral supplement.
Poultry Indus. MS-895

Mont. The Effect of Nutrition of Hens on the Production, Market Qualities and Hatchability of Eggs. To determine influence of nutrition on rate of egg production, total production, egg weight, fertility, and hatchability in N. H., and S. C. White Leghorn chickens, especially to (1) determine value of vitamin B-complex supplement added to mash mixtures with a simple and a complex carbohydrate base; (2) compare rations differing only in whole grains fed; (3) compare mixtures of different ratios of wheat and barley; (4) compare pearl (dehulled) barley with ordinary barley; and (5) study value of a complex mineral supplement.
Poultry Indus. MS-896

Nebr. The Utilization of Food Elements by Growing Chicks. To learn feed efficiencies and retention of food elements by growing chicks when rations for broilers are varied by (1) changing source of plane of protein feeding; (2) varying calcium to phosphorus ratio; (3) varying sources and levels of calcium and phosphorus; (4) changes in level of D_3 fed; and (5) changes in levels and sources of vitamin A fed.
Chem. 119

Feeds and Nutrition (Continued)

Nebr. The Influence of Rate of Growth on the Amino Acid Requirement of the Growing Chick. Establish lysine requirement of chicks growing at different rates.
Poultry Husb. 528

N. H. Efficiency of Feed Utilization in Poultry Production. To obtain greater feed efficiency in production of poultry meat and eggs through an increase in the energy content of the ration.
Poultry Husb. 55

N. H. Influence of the Ration of Laying Hens on the Nutritive Value of the Eggs. To learn if nutritive value of eggs, with respect to water soluble vitamins, is affected by inclusion of additives (antibiotics) in the ration.
Agr. and Biochem.,Poultry Husb. 124

N. J. The Ability of the Chick at Various Ages to Metabolize Sucrose. Learn (1) ability of chick from 1 day to 10 weeks to metabolize sucrose as compared with other carbohydrates; (2) activity of sucrose, maltase, lactase and amylase, in pancreas and intestinal mucosa and if there is an increase in activity of certain of these as bird ages. (3) Measure rate of absorption of various mono- and di-saccharides from isolated segments of intestine of chick. (4) Learn effect of amount and quality of protein in the diet on use of sucrose by chick.
Agr. Biochem. 15

N. J. A Study of the Water Balance of Chickens Fed Rations Containing High Levels of Sugar and Sugar By-Products. Study dietary and physiological factors influencing moisture content of droppings. Emphasize the developing of accurate methods for studying water intake and water output of chicks.
Agr. Biochem., Poultry Husb. 16

N. J. The Lysine Requirement of Chickens. Learn (1) lysine requirement of chickens up to 12 weeks of age; (2) effect of energy level of ration on lysine requirement of chickens; (3) effect of lysine deficiency on activities of specific enzyme systems.
Agr. Biochem. 17

N. J. The Effect of Antibiotics on the Absorption of Nutrients by the Chick. Learn (1) in vitro rate of absorption of nutrients as amino acids or sugars from isolated segments of chick intestines, birds having previously been fed standard diets with and without antibiotics as bacitracin; (2) in vivo rate of absorption of nutrients from Thiry-Vella intestinal fistulas, birds previously and concomitantly receiving bacitracin; (3) weight of selected portions of intestinal walls of chicks fed diets with and without standard antibiotics.
Agr. Biochem., Poultry Husb. 20

Feeds and Nutrition (Continued)

N. J. Factors Influencing Vitamin K Requirement and Utilization in Poultry. Study: (1) activity of different forms of vitamin K and reasons for differences in activity; (2) influence of sulfaquinoxaline and other antivitamins on need and use, and study type of inhibition involved; (3) magnitude of biosynthesis of vitamin K in birds of different ages, and influence of dietary ingredients thereon.
Poultry Husb. 531

N. J. Interrelations of Disease and Nutrition in Poultry. Study (1) interrelationship of nutritional status and infectious respiratory diseases; (2) value of nutritional prophylaxis and nutritional therapy in these diseases; (3) nutritive needs during and after experimental infection; (4) impact of respiratory diseases on: (a) blood plasma and cellular components and other blood constituents, (b) anatomical, histological and physiological changes of liver, kidney, heart, and other organs, (c) role of endocrine and enzyme systems in relation to susceptibility and resistance to experimental infections; (5) environmental stress as a sensitizing agent to infectious respiratory diseases.
Poultry Husb. 537

N. J. Nutritional Factors Influencing Efficiency of Feed Utilization. To (1) determine which amino acids are responsible for the improvement in feed conversion of the past few years; (2) find what other proteins not commonly included in rations now show the same effect as casein and yet are economically capable of being included in poultry rations; and (3) study the role of other factors such as energy content, certain stimulants such as antibiotics and antioxidants with respect to efficiency of feed use.
Poultry Husb. 565

N.Y.C. The Requirement of Poultry for the Members of the B Group of Vitamins. A. The Isolation and Identification and Functions of the Unknown Components of the Vitamin B Complex. To determine quantity of the R and S factors of the vitamin B complex required by chickens and their importance in practical rations.
Poultry Husb. 142-A

N.Y.C. The Requirement of Poultry for the Members of the B Group of Vitamins. B. The Pantothenic Acid Requirements of Poultry. To determine whether or not pantothenic acid is required for hatchability.
Poultry Husb. 142-B

Feeds and Nutrition (Continued)

N.Y.C. The Requirement of Poultry for the Members of the B Group of Vitamins. D. The Requirements of Poultry for Vitamin B_{12}. To determine the quantity of each chemically identified component of the vitamin B complex required by poultry for growth, reproduction, and maintenance of health, amount present in feedstuffs, and their stability under practical conditions; also to discover, isolate and identify chemically any unknown components of vitamin B complex; and to ascertain physiological mechanisms by which these vitamins function in metabolism and extent to which they may be stored in the body.
Poultry Husb. 142-D

N.Y.C. The Requirement of Poultry for the Members of the B Group of Vitamins. G. The Riboflavin Requirements of Poultry. To determine riboflavin requirements for egg production and hatchability under conditions which prevent coprophagy in order to eliminate as completely as possible any extra-dietary sources of the vitamin.
Poultry Husb. 142-G

N.Y.C. Physiologic Factors Influenced by Vitamin E and their Roles in Protein, Fat and Mineral Metabolic Interrelations. (1) Further elucidate mechanisms of vitamin E action. (2) Measure changes in dynamics of protein, fat, and mineral metabolism in relation to one another.
Poultry Husb. 212

N. C. Study of the Mode of Action of Antibiotics in Increasing the Growth Rate of Chicks. To (1) ascertain whether antibiotics exert their growth promoting effects entirely through their effect on the intestinal micro-organisms of the chick; and (2) determine how changes in the intestinal micro-organisms caused by feeding antibiotics increase growth rate of chicks.
Poultry 97

N. C. The Effect of Diet on the Bactericidal Action of Chicken Blood Plasma. To learn effect of (1) source and level of protein in chick diets on bactericidal action of chicken blood plasma against *Salmonella pullorum* and *Salmonella gallinarum*; (2) supplementing high and low protein diets with antibiotics, antioxidants, and combinations of these on bactericidal action of chicken blood plasma.
Poultry 99

N. Dak. Chick Growth Inhibition by Linseed Hull and Cotyledon Fractions. To determine location of inhibitor in relation to seed parts and obtain information on chemical nature of the inhibitor.
Anim. Indus., Agr. Chem. 2-3

Feeds and Nutrition (Continued)

N. Dak. The Quality of Proteins in North Dakota Feedstuffs. To find (1) limiting amino acids of feedstuffs in poultry rations; (2) practical and economical supplements for rations of monogastric farm animals.
Anim. Indus. 7-7

N. Dak. The Use of Chromic Oxide in Poultry Ration as a Measure of Nitrogen Retention by the Bird. To (1) learn the protein quality of poultry feeds; and (2) measure the effects or digestibility of various types of diets and their mode of administration on protein retention.
Anim. Indus. 14-2

N. Dak. The Use of High Energy Diets and Amino Acid Supplementation in Farm Laying, Breeding and Growing Flocks. (1) Develop high energy rations for growing chickens and laying hens. (2) Learn effect of certain amino acids in layer and breeder rations on efficiency of diets containing various energy levels, rate of egg production at various energy levels, egg size, fertility and hatchability and interior and exterior egg quality.
Anim. Indus. 14-4

Ohio Nutritional and Physiological Factors Affecting the Production, Hatchability and Quality of Eggs. 3. The Effect of Nutrient Density and Nutrient Interrelationships on the Reproductive Performance of Chickens. (1) Learn effect of nutrient density of diet on reproductive efficiency and nutrient utilization by laying hens. Study (2) nutrient interrelations between protein and energy for optimum reproductive performance; (3) problems associated with feeding of rations of high nutrient density.
Poultry Sci. 17-3

Ohio Causes and Prevention of Hemorrhagic Disease in Chickens. 1. Nutritional Aspects. To study effects of feeding various nutrients and drugs, alone and in combination on the incidence, prevention, and cure of hemorrhagic disease.
Vet. Med., Poultry Sci. 126-1

Ohio Causes and Prevention of Hemorrhagic Disease in Chickens. 2. Clinical and Pathological Aspects. To study (1) etiology of hemorrhagic syndrome including fungi, bacteria, viruses, toxic drugs, and by-products of metabolism; (2) pathology and hematology associated with hemorrhagic syndrome; (3) distribution, economic significance and control of hemorrhagic syndrome.
Vet. Med. 126-2

Feeds and Nutrition (Continued)

Ohio Effect of Physical and Chemical Treatment of Feedstuffs on Growth and Nutrient Utilization by the Chick. To (1) learn effect of physical and chemical treatment of feedstuffs on nutrient utilization for growth; (2) compare treated and untreated carbohydrate feedstuffs with starches, dextrins and sugars for nutrient availability; (3) compare treated and untreated protein feedstuffs with isolated proteins from milk and soybeans for nutrient availability.
Poultry Sci. 182

Okla. Digestibility and Metabolism Studies with Layer Hens. (1) Learn fat level in a layer ration at which maximum fat digestibility is obtained; learn effect of fat level on digestibility of Ca and P (compare tallow, Marco B-75, soybean oil, and egg yolk solids). (2) Improve efficiency of fat digestibility through addition of various lipase supplements to ration. (3) Study physiological effects of high ration fat levels on layers.
Poultry, Zool., Chem. 823

Okla. Effects of Tranquilizing Drugs on Reproductive Performance of Mature Chickens. Learn effects of various levels of reserpine on breeding chickens as measured by: attainment of sexual maturity, reproductive performance, cannibalistic tendencies, incidence of and mortality from avian leukosis complex and mortality from all causes, weight.
Poultry 963

Okla. Nutrient Requirements of Chicken Hens Fed High Energy Layer Breeder Rations. (1) Learn needs of layers for niacin, riboflavin, pantothenic acid, folic acid, choline, pyridoxine, thiamin, and vitamin B_{12}; (2) measure possible interrelationships among these vitamins during a 48-week laying period.
Poultry 972

Pa. Nutritive Deficiency Diseases in Poultry. To learn (1) etiology of deficiency diseases in poultry and the various factors of importance in their prevention and cure; and (2) fundamental requirements of poultry for vitamins and minerals.
Poultry Husb., Agr. and Biochem. 706

Pa. Study of a Riboflavin Deficiency in Eggs Affecting Hatchability. To determine if the condition is inherited and if so the mode of inheritance.
Agr. and Biochem., Poultry Husb. 1162-A

Feeds and Nutrition (Continued)

Pa. The Influence of Energy-Fiber Concentrations and Protein Source of the Diet on Certain Egg Quality Characteristics. To study the influence of energy-fiber concentrations and protein source of the diet on the following egg quality characteristics: U. S. grade, albumen condition, incidence of blood and meat spots, shell thickness, and yolk color.
Agr. and Biochem., Poultry Husb. 1199-B

Pa. Selection of Minimum Cost Broiler Feeds. Obtain solutions for least cost broiler diets under varying assumptions of availability and prices of ingredients.
Agr. and Biochem., Agr. Econ., Rural Sociol. 1329-A

R. I. The Value of Good Ranges During Rearing as Measured by Laying House Performance of Pullets. To (1) determine laying house performance of pullets following several ranging systems and wire porch rearing; (2) compare efficiency of three range management treatments and confinement rearing; (3) investigate nutritive value of Kentucky bluegrass and Ladino clover for pullets; (4) obtain information on feed conservation by using seeded and fertilized ranges; (5) compare 3-year range rotation system with ranges used each year; and (6) encourage conservation and use of poultry manure.
Agron., Anim. Path., Poultry Husb. 801

R. I. The Factor or Factors in an All Plant Breeder Ration for Chickens Responsible for High Production and High Hatchability. To determine (1) if the factor or factors responsible for high production and hatchability in previously tested all plant rations are in the alfalfa or the BY-500 used in ration at 2 percent; (2) if the factor or factors are any of the now known vitamins; and (3) if possible, nature of responsible factors if they are not of presently known nature.
Poultry Husb. 804

S. C. The Effect of Certain Non-Nutrient Additives on Egg Production and Hatchability in Chickens. Learn comparative effect of oxytetracycline (terramycin), 3-nitro-4-hydroxyphenylarsonic acid (3-nitro), 4-aminophenylarsonic acid (arsanilic acid) and N-(5-nitro-2-furfurylidene)-3-amino-2 oxazolidone (furazolidone) on egg production, feed efficiency, body weight, mortality, and hatchability in chickens.
Poultry 38

S. C. A Study of the Nutritive Factors of Cottonseed Meal and Cottonseed By-Products in Poultry Rations. To learn effects of protein levels, animal protein sources, and amino acid supplementation and energy levels in rations having cottonseed meal; and effects of cottonseed by-products (oil and fatty acids) in poultry rations.
Poultry 110

Feeds and Nutrition (Continued)

S. C. Effect of Feeding and Management of Pullets on Reproduction and Liveability. To determine value of limited vs. full feeding of pullets on green range in relation to subsequent egg production and liveability.
Poultry 128

S. Dak. Supplementation of Cereal Grains for Chickens. To determine value of antibiotics and unidentified factors in balanced diets made largely of cereal grains for growing chicks and laying hens.
Poultry Husb., Biochem. 241

S. Dak. Studies on the Effect of Antibiotics on Microflora of Chickens. To determine influence of antibiotics on microflora of laying hens.
Bact. 257

Tenn. Amino Acid Supplementation of Hydrolyzed Poultry Feathers for Use in Poultry Feed. Learn amino acid deficiencies of hydrolyzed poultry feathers when used as protein source for poultry.
Poultry 146

Tenn. Relationship of Protein to Energy for Laying Hens. (1) Study relationship of protein to energy in the feed of laying hens. (2) Learn optimum level of protein and energy for maximum egg production and feed efficiency.
Poultry 147

Tenn. Feed Additives for Poultry. Study use of various additives to broiler feeds in an effort to improve growth rate and feed efficiency.
Poultry 148

Tenn. Effects of Restricting Feed Intake to Growing Pullets. Study (1) economics of restricting feed intake to growing pullets when measured in annual returns over feed cost; (2) effects on physical make-up of pullet when feed intake is restricted during growing period.
Poultry 168

Tex. A Study of the Metabolic Interrelationships of Dietary Vitamins, Proteins, Amino Acids and other Nutrients in the Chick. To (1) determine effect of level of dietary vitamins on concentration of free amino acids in blood plasma and tissues of chicks; (2) determine effect of complete and incomplete protein with and without amino acid supplements on concentration of free amino acids in blood plasma and tissues of chicks; and (3) correlate changes in concentration of free amino acids in blood plasma and tissues with growth of chicks.
Biochem., Nutr. 972

Feeds and Nutrition (Continued)

Vt. Consumption and Utilization of Forage by Chickens. Learn (1) preferences for and kinds and amounts of forage, feed, and other substances consumed by birds reared on range; (2) costs and efficiency of gain, and grade and market finish made by birds reared on different kinds of pastures as compared to similar birds reared in confinement; (3) viability, rate of growth, feed efficiency, and laying ability of hens reared on pasture, compared to those reared in confinement up through first year of laying.
Poultry 61

Wash. Processing and Treatment of Barley to Improve its Nutritional Value for Poultry. To study (1) effect of removing fibrous hull from barley grain on its nutritional value for poultry; (2) effects of different processing treatments as steaming, toasting, and autoclaving on nutritional value; (3) investigate different methods as pearling and grinding followed by sifting to remove fibrous hull; (4) relative acceptability of differently processed barley as compared to wheat or corn.
Poultry Sci. 1291

W. Va. Broiler Rations for High Efficiency. To determine rate and efficiency of growth, protein use and metabolizable energy of broiler rations as affected by (1) protein levels in relation to crude fiber content; (2) kind and level of protein concentrate; and (3) supplementation with a. certain vitamins and vitamin concentrates of B-complex, b. coccidiostatic drugs, c. antibiotics, and d. certain amino acids.
Agr. Biochem., Poultry Husb. 17

W. Va. The Effect on Hatchability, Chick Viability and Growth Rate of Fortifying Chick Embryos. Learn possibility of increasing hatchability of eggs, of increasing viability of chicks, and of improving growth rate of chicks by fortifying embryos with antibiotics, vitamins, and energy supplying nutrients.
Poultry Husb. 111

Management and Housing

Ala. Effect of Varying Light Treatments, Under Controlled Temperature, Humidity and Other Environmental Factors on Poultry Production. (1) Compare egg production and physiological responses of pullets: maintained under constant light treatments and under gradually increasing amounts of light, grown under normal light and under restricted light; maintained under constant periods of light and under intermittent periods. (2) Learn principles involved in windowless poultry house; develop a plan incorporating features for low cost construction and efficient labor management; study problems involved in temperature and humidity control; develop a satisfactory heating, cooling and ventilation system; investigate use of mechanical devices for grinding, mixing feeds and self-feeding, for removing litter, for egg handling, cleaning, and storage.
Poultry Husb., Agr. Engin. 114

Ala. The Effect of Light on Growth of Broiler Chicks. To determine optimum lighting system for growth in broiler chicks.
Poultry Husb. 554

Ark. Housing as it Affects Environmental Conditions for Poultry Production. (1) Learn feasibility of various degrees of environmental control in poultry housing under Arkansas weather conditions. (2) Establish recommended design procedures for various levels of poultry housing as might be found to be profitable and desirable through this study.
Agr. Eng., Poultry 414

Ark. Meat and Egg Production of Chickens as Affected by Housing. To learn (1) effects of various quality levels of housing on poultry production, with broilers and layers; (2) production performance of broilers and layers as effected by different housing levels.
Anim. Indus., Vet. Sci., Agr. Engin. 415

Storrs (Conn.) Development of Methods for Providing Optimum Temperature and Ventilation for Profitable Poultry Production, with Particular Emphasis on Respiratory Disease Control. (1) Learn relation of ventilation and temperature to poultry respiratory disease. (2) Devise economical methods of providing optimum temperature and ventilation by design, construction and equipment of poultry houses.
Agr. Engin., Anim. Dis., Poultry 204 (NE-8)

Management and Housing (Continued)

Del. Environmental Conditions in Broiler Houses. (1) Study artificially produced conditions in insulated broiler houses to learn effects of temperature and humidity variations in combination with rates of air exchange, concentration of ammonia and dust in the air on broiler production efficiency. (2) Establish minimum ventilation requirements that should exist in broiler houses for maximum production efficiency.
Anim. and Poultry Indus., Agron., Agr. Engin. 38 (NE-8)

Ga. Poultry Processing Plants, Equipment, and Facilities. To (1) determine comparative efficiency of selected poultry plants varying in size and sequence of operations; (2) develop plant layout principles and improved materials, handling and work methods; and (3) design processing plants with equipment and facilities for conducting all operations incident to receiving processing and final disposition of finished product and supplies.
Agr. Engin., Poultry Husb. 308 Coop. AMS

Hawaii A Study of the Performance of Mature New Hampshire Pullets Housed in Laying Pens of Various Construction. To (1) obtain data on different types of poultry houses to find which is best suited for production of eggs from layers fed high concentrations of cane final molasses; (2) modify and design laying pens and cages to correct conditions so smaller percent of soiled eggs will be produced by each type pen; and (3) compare performance of layers on either litter or wire floors, that are fed experimental molasses-type rations.
Poultry Husb. 418.4

Maine Poultry Laying House Environment. To evaluate gravity and mechanical ventilation methods and equipment for providing and controlling the environmental requirements for high egg production, feed efficiency, egg size, egg cleanliness, disease incidence, comfort and mortality of laying hens.
Poultry Husb., Chem., Agr. Engin. 68 (NE-8) Coop. USDA

Maine Utilization of the Stimulating Influence of Artificial Illumination of Poultry. Learn most efficient ways and means of utilizing stimulating influence of light on pituitary gland which acts on gonads of fowl.
Poultry Husb. 115

Management and Housing (Continued)

Md. The Effect of Rapid Changes in Ambient Temperature on Egg Production. Study effect of rapid changes in ambient temperature on number of eggs produced, egg quality, and feed consumption.
Poultry Husb. M-50 (NE-8) Coop. ARS

Mass. Investigation of Low Cost Housing for Poultry. Investigate (1) relationship between pen size, population density ratios and egg production and bird health; (2) feasibility of mechanical clean-out associated with wire and/or slatted floors; (3) comparative material costs involved in several types of low cost housing.
Agr. Engin. 146 (NE-8)

Miss. Adapting, Construction and Air Conditioning of Poultry Houses for the Most Economical Production. To (1) find optimum air conditioning requirement for maximum broiler and egg production at minimum cost; (2) study and evaluate different methods of ventilating poultry houses to control temperature, humidity, and air movement; (3) construct and equip economic house or houses adapted to air conditioning and find effect on broiler growth and egg production. Study methods of heating or supplementary heating of poultry houses by use of solar heat.
Agr. Engin. HB-9

Miss. Cages Versus Conventional Floor Practices on Supply and Quality of Commercial Eggs. (1) Investigate use of cages on quality of eggs produced as compared to conventional floor type methods of production. (2) Learn effects of dependability of egg supply, brought about by use of cages as compared to conventional floor practices, as reflected in culling rates, mortality, persistency and replacement rates.
Poultry Husb. HM-6

Miss. A Comparison of Laying Cages and a Non-Conventional Floor System in the Production of Commercial Eggs. Replacement rates, feed efficiency, mortality and other stress factors, replacement cost and labor income will be checked under both systems.
Agr. Econ., Poultry Husb. HX-1

Miss. The Effects of Lights and Restricted Feeding, Prior to Sexual Maturity, on the Performance of Laying Hens. Learn effect of (1) light during starting period on mortality, age at sexual maturity, body weight, size of eggs, and feed consumption; (2) restricted feeding during growing period on mortality,age at sexual maturity, body weight, size of eggs, and feed consumption.
Poultry Husb. HX-2

Management and Housing (Continued)

Mo. Systems of Flock Replacement. To (1) compare costs and returns of confinement to range reared pullets for egg production; and (2) develop a compact and more profitable farm unit of poultry for egg production.
Poultry Husb. 244

N. H. The Influence of Light upon the Feathering Condition, Weight Gains, Feed Conversion, and Mortality in Broilers. Learn (1) influence of light intensity and daily light dosage on feathering condition, weight gains, feed conversion, and mortality in broilers at market age; (2) role which other selected management factors, combined with intensity and dosage, play in influencing the above conditions.
Poultry Husb. 88 (NE-8)

N. J. Investigations of a Low-Cost Solar Poultry House. (1) Design and evaluate the performance of a laying house furnishing low initial cost per bird, low maintenance and depreciation costs, maximum use of sun's rays during winter to maintain desirable litter conditions. (2) Analyze factors influencing moisture content of poultry-house litter.
Agr. Engin., Poultry Husb. 61 (NE-8)

N. C. Physical Factors for Environment in Animal and Poultry Shelters. (1) Learn relation between structural materials and shapes, and physical factors of environment. (2) Develop and evaluate structures with related equipment necessary for providing an improved environment for farm animals and poultry.
Agr. Engin. 136

Ohio Preliminary Investigation of Heat Exchangers and Filter Systems for Use with Heat Pumps in Broiler Houses. (1) Find way to adapt packaged unit heat pump to year-round air conditioning of a poultry house by proper selection of a heat exchanger distribution system and the conquering of dust and condensate associated with heat pump operation. (2) Establish capabilities and limitations by preliminary tests and checks on houses and equipment. (3) Field test equipment selected or designed in laboratory under average poultry production conditions.
Agr. Engin. 145 (NC-23)

Management and Housing (Continued)

Pa. Environmental and Management Factors Affecting the Quality of Poultry Meat and Eggs. To determine (1) effect of the following upon temperature and relative humidity in poultry house: a. ventilation with pressure inlets as compared to exhaust fans and conventional slots and windows, b. forcing air into poultry house from north and south sides, and c. solar energy entering building through insulated windows; (2) how condition of litter is affected by inside temperatures, and relative humidities as related to method of ventilation and solar energy; (3) effect of removals of droppings by various methods and at various intervals, upon condition of floor litter and inside temperature and humidity; (4) extent that floor space required by layers and broilers is affected by a. method of ventilation, b. method and frequency of removal of droppings, and c. control of solar energy; and (5) effect of temperature and relative humidity in poultry house, methods of removal of droppings, and control of solar energy upon a. cleanliness of egg produced, b. egg size and production by layers, c. market egg quality, d. rate of gain and market quality of carcass, and e. health of flock.
Agr. Engin., Poultry Husb. 1148-A (NE-8)

Pa. A Comparison of the Pennsylvania State Poultry Management Research House with a Conventional Poultry House of the Same Size. Compare performance of two houses with respect to: egg production, egg size, egg cleanliness, and other quality factors; feed utilization efficiency, bird weight changes, and mortality of layers; environmental conditions; moisture content of litter; labor, water, and electrical energy requirements.
Poultry Husb. 1148-C (NE-8)

Pa. Poultry House Design for Effective Use of Solar Heat in the Control of Environmental Temperatures. Learn effect of following design factors on solar heat gain of poultry houses: solar orientation of building, amount of window area, type of window design, selective use of construction materials and vegetative cover for control of solar heat absorption and reflection.
Agr. Engin. 1148-D (NE-8)

Pa. Equipment for Efficient Poultry Production. (1) Develop equipment for management in areas where labor efficiency may be improved. (2) Study designs and arrangements of feeding, watering, and roosting equipment for reduced feed wastage, water spillage, and feather soilage, and for efficient space and labor use. (3) Evaluate effect of different types and arrangement of equipment on poultry house environment.
Agr. Engin., Poultry Husb. 1316

Management and Housing (Continued)

P. R. Poultry Management Studies. To study the effect of different poultry management practices on egg production.
Anim. Husb., Agr. Econ., Rural Sociol. 79

R. I. Second and Third Year Egg Production in Laying Hens. To compare (1) monthly egg production, livability, fertility, and hatchability of eggs from birds in second and third production years with first year layers; (2) costs of production of eggs from second and third year hens with those from pullets; (3) egg production and livability in pullets from second and third year layers with those from first year layers; (4) costs of rearing pullets with costs of maintaining old hens through a molting period; and (5) fertility in second year breeding cocks with fertility in first-year males.
Anim. Path., Poultry Husb., Agr. Econ. 803

S. Dak. Portable Floor Plate Brooder with Electric Heating Elements. Develop portable brooder, with electric heating elements, low in cost, economical in power requirements, and one with under floor heating installations.
Agr. Engin. 280

S. Dak. Adaptions of New Construction Concepts to the Design of Farm Service Buildings and Animal Shelters. (1) Design wall and roof filler panels for post and truss construction as to best procedure for meeting strength and use needs for buildings. (2) Study adaptability, if needed, and redesign the self supporting wall and roof panels for residential building. (3) Check designed panels for strength and flexibility in laboratory by short term repeated loading cycles, long duration load tests, impact tests, and complete destruction tests. (4) Field test new design concepts under actual operating conditions to learn usability, durability, and accomplishment of objectives. (5) Evaluate results of designs and tests; make known conclusions or recommendations from these results by justifiable means.
Agr. Engin. 316

Tenn. Influence of Environment on Performance of Hens. To study performance of hens subjected to: (1) constant controlled temperature and humidity; (2) controlled variable temperature and humidity; (3) conventional floor method of management; and (4) conventional laying cages.
Poultry 144

Management and Housing (Continued)

Tenn. The Influence of Light upon Performance of Domestic Chickens. Learn influence of periods of light and darkness on rate of growth, age at sexual maturity, release of ovulation-inducing hormone, oviposition, ovulation, and laying persistency.
Poultry 155

Tenn. Housing for Chicks. Learn: (1) growth, mortality, feed consumption and feed use of chicks when brooded in a solar, a windowless and a conventional brooder house; (2) electrical requirements for ventilating and heating conventional, solar and windowless brooder houses, and compare room temperature, relative humidity, litter conditions and air movement in these; (3) relative costs of growing chicks in three types of brooder houses.
Poultry, Agr. Engin. 172

Utah The Optimum Temperature for Laying Hens Housed in Individual Single and Multiple Deck Batteries. (1) Learn effect of constant and fluctuating temperatures on the performance of laying hens housed in individual multiple deck batteries. (2) Study the extent to which laying hens can adapt to changes in temperature.
Poultry, Agr. Engin. 504

Wash. The Effects of Artificial Light on Growth of Broilers. To determine effects of varying periods of light on gain and feed efficiency of broilers.
Agr. Engin., Poultry Sci. 1204

W. Va. Poultry House Design for West Virginia. (1) Learn building requirements for brooding and laying houses as indicated by air needs for control of moisture, temperature, and ammonia fumes in a tightly sealed, windowless house; compare with a solar house of same size and material in terms of efficiency and economy; compare as above, except solar house will be converted to a conventional house. (2) Evaluate materials and component parts of houses for performance, durability, and economy. (3) Learn equilibrium moisture of litters.
Agr. Engin., Poultry Husb., Anim. Path. 65 (NE-8)

Meat Investigations

Ark. The Biological Value of the Proteins in Different Cuts of Chicken Meat and in Chicken Organs. (1) Learn biological value of proteins in white and dark meats of chicken muscle and neck meats in friers, broilers, and hens; also in livers, gizzards, hearts, and lungs, as to growth, reproduction, and lactation. (2) Reinvestigate value of proteins in chicken muscle meats, beef, pork, lamb and veal.
Agr. Chem. 418

Del. Effects of Scald on Processing, Carcass Quality, and Chemical Changes in the Skin of Broilers. Learn effects of conditions of scald from 128-140° F. for period of time on ease of removal of feathers, quality of carcass, chemical changes in proteinaceous and lipid components of skin of broilers.
Anim. and Poultry Indus. 8-PI

Del. Chemical Aspects of the Marketing of Poultry Meat. To (1) develop improved techniques for maintaining quality of chickens from the farm to consumer; and (2) establish a physico-chemical basis for changes in quality which occur as a result of the storage of ready-to-cook poultry.
Agr. Chem. 28-C

Del. Causes and Development of Bruises During the Marketing of Broilers. (1) Study possible effects of marginal vitamin E, calorie-protein ratio, added fats and fatty acids, high salt levels before slaughter, etc., on susceptibility of broilers to bruising during marketing. (2) Study biochemical and physiological changes in bruised tissues including: hemoglobin breakdown products, concentration of electrolytes, peroxide levels, and tocopherol levels as an aid in locating procedures in marketing likely to cause bruises.
Anim and Poultry Indus. 59-PI

Ind. Extending the Shelf Life of Fresh Dressed Poultry. Learn (1) effect of various fungistats and fungicides (used with antibiotic treatment) on development of yeasts; (2) storage life which can be obtained by use of chlorinated water in chill tanks, in addition to antibiotics.
Poultry Sci. 775

Ind. Methods of Processing and Packaging of Frozen Poultry in Relation to Institutional Cookery. To test the thesis that it should be possible to develop packages or package liners, methods of cutting and packaging, and freezing which would permit institutional kitchens to place frozen poultry directly in the oven to complete the cooking of partially cooked products or to completely cook a frozen product.
Poultry Sci., Biochem., Home Econ. 776

Meat Investigations (Continued)

Ind. Quality Classification in Relation to Nutritive Value of Poultry Products. Learn (1) relation existing between grading factors and nutritive value of poultry products; (2) changes in nutritive properties of poultry products during time of marketing; (3) effect of various processing and marketing techniques on nutritive properties of poultry products.
Poultry Sci. 961 (NCM-7)

Maine Factors Affecting the Shelf-Life of Pre-Cut Packaged Poultry. To study (1) role of microbiological populations and their relation to the storage life of pre-cut packaged poultry; (2) effect of antibiotics and in plant chlorination on this problem; (3) effect of container and over-wrap on odor and deterioration of packaged product.
Food Proc., Chem. Engin., Poultry 98

Maine The Determination of Quality Losses in Handling and Processing Broilers and Suggested Remedial Measures. To determine the (1) nature, cause, and amount of loss in quality of broilers during the pick-up operation and in each phase of processing; (2) costs and returns of various methods designed to reduce the amount of quality losses.
Agr. Econ., Poultry ES 392

Mich. Minimizing Quality Losses of Poultry Meat Products in Market Channels. To learn (1) factors affecting decline in poultry meat quality during processing and storage; (2) variation in initial quality and changes occurring in quality of meat obtained from chickens which had received newer feed ingredients; and (3) variations in initial quality and changes in quality of meat from chickens which had received dosages of commonly administered hormone substance and drugs.
Poultry Husb., Home Econ. 100 (NCM-7)

Mo. Methods of Processing Poultry for Commercial Precooked Frozen and Canned Products. (1) Compare various cooking procedures for tenderness and cooking losses. (2) Develop methods for cooling meat before boning to improve shelf life and wholesomeness. Study (3) various cooling temperatures and time periods of boned, precooked meat for prolonged shelf life and low bacterial counts in finished, frozen or canned product; (4) effect of freezing temperature and time for tenderness, flavor, storage life, and wholesomeness.
Poultry 323

Meat Investigations (Continued)

N.Y.C. Factors Affecting Table Quality of Poultry Meat. A. Effect of Rate of Freezing on the Appearance and Storage Life of Ready-to-Cook Poultry Carcasses. B. Influence of Aging on Quality of Poultry Meat. To learn (1) optimum rate of freezing and temperature of turkey and chicken carcasses, with regard to discoloration and learn cause of discoloration; (2) optimum time for aging of carcasses of different species as reflected in tenderness, palatability and keeping quality.
Poultry, Home Econ. 147

N. C. Shelf Life of Fresh and Previously Frozen Broiler-Fryers as Affected by Time Held in Slush Ice after Evisceration. To learn (1) moisture uptake of eviscerated broiler-fryers held in slush ice for 1, 3, 5, or 24 hours; (2) if relationship exists between amount of moisture uptake in slush ice cooling and bacterial contamination of eviscerated broiler-fryer carcasses; (3) if relationship exists between holding time in slush ice and shelf life of fresh and previously frozen broiler-fryers.
Poultry, Bot., Agr. Econ. HM-19

Pa. Factors Affecting the Market Quality of Dressed and Drawn Poultry. To determine the extent to which flavor and market quality of freshly-killed, hard-chilled and frozen eviscerated poultry meat are affected by: (1) fattening rations fed prior to killing; (2) conditions under which the live poultry are held before killing; (3) handling conditions during dressing; and (4) storage conditions of chill and freezer rooms.
Poultry Husb., Bact., Chem., Agr. Engin., Home Econ. 1078

Tenn. Influence of Rate of Cooling and Water Absorption on Shelf Life, Cooking Quality and Flavor of Chickens. Learn (1) relationship of cooling periods and cooling media to change in weight, carcass quality, and shelf life of various classes of poultry; (2) relationship of cooling procedure to cooking characteristics and consumer acceptability of various classes of poultry.
Poultry, Home Econ. 115

Physiology

Ark. Physiological Cause for the Differential Rate of Fertility and Hatchability between Breeds of Poultry. To determine (1) if reason for poor fertility and hatchability in some breeds is due to a natural endocrine deficiency, and if so, to develop a feasible practical method of hormone therapy to correct the condition; and (2) relative physiological activity of spermatozoa and of female reproductive tract of the purebreds, in order to establish if there is any basis for some comparative physiological antagonism between sperm of certain breeds and female tract of the same and other breeds.
Anim. Indus., Vet. Sci. 374

Storrs (Conn.) Embryo Mortality and Hatchability in the Domestic Fowl. (1) To discover hereditary factors which cause death of the developing chick before hatching; (2) to study external and non-hereditary factors detrimental to hatchability; and (3) to analyze and present all available information concerning factors which influence the hatching of eggs.
Anim. Genet. 128

Del. Genetic Differences and Gene-Environment Interactions in the Thyroid Activity of Chickens. (1) Study feasibility of using radioactive I tracer technique to establish relative thyroid activity. (2) Learn if there are significant genetic differences in thyroid activity of chickens. (3) Compare thyroid activity in "pure" breeds and their crosses in relation to any manifestations of heterosis. Learn (4) if thyroid activity is altered by variations in light, temperature, and humidity; if there are breed and strain differences in response; (5) if there are sex differences in thyroid activity, and if there are breed and strain differences.
Anim. and Poultry Indus. 44 (NE-6)

Del. Techniques for the Study of Thyroid Physiology in the Domestic Fowl. Evaluate various techniques for studying thyroid physiology in the fowl.
Anim. and Poultry Indus., Agr. Chem. 60

Ga. Some Genetic and Physiological Aspects of Heat Tolerance in Domestic Fowl. To learn (1) heat tolerance of domestic fowls at high environmental temperatures; (2) strain differences in growth, mortality and other physiological characteristics of growing chickens subjected to high environmental temperatures; (3) effects of high environmental temperature on: reproductive performance of fowl, and (4) its effect on endocrine, digestive and blood chemistry, and physiology on fowl.
Poultry Husb. 334

Physiology (Continued)

Hawaii Factors Affecting Fertility in Chickens Maintained in Hawaii. Compare rates of fertility among comparable lots of chickens on standard managerial care and in houses of various designs. Management as follows: (1) litter, (2) raised level wire floor, (3) raised wire floors with floors of various degrees of slope, (4) stud mating in conjunction with individual cages, (5) artificial insemination of chickens housed in individual cages. Determine and measure effects of time of mating or insemination, frequency of, onset and duration of same, and rate of fertility. Measure onset and duration of fertilization of male and females kept under Hawaiian conditions. Learn if seasons affect fertility of sexually active chickens kept under lab conditions. Note effect of gonadal-like hormones on spermatozoa and ova production and its concomitant effect on fertility.
Poultry Husb. 431

Ind. The Effect of Controlled Temperature on the Physiology and Production of Laying Hens. To learn (1) effect of different levels of controlled temperature on physiology and production of laying hens as contrasted to normal fluctuating seasonal temperatures; (2) value of a large quantity of ventilation as a measure to prevent heat prostration and improved poultry production under summer conditions.
Poultry, Agr. Engin. 829 (NC-23) Coop. ARS

Kans. Behavior of Chickens as Related to Flock Organization and its Inheritance. To obtain basic knowledge of the behavior of chickens in a flock and its inheritance, and to determine the application thereof.
Zool. 237

Ky. A Study of Factors Influencing Embryo Mortality, Embryo Growth, Hatchability and Subsequent Performance of Chicks. To study (1) effect of egg size and incubation conditions on embryo mortality, metabolism and hatchability; (2) factors influencing length of incubation period; and (3) relationship between length of incubation period and subsequent growth, egg production, egg size and hatchability.
Poultry 651

Physiology (Continued)

La. Physiological Processes Involved in Seasonal Changes in Egg Quality. To learn (1) effects of controlled temperature and age of bird on egg shell quality, interior egg quality, and production; (2) Basal Metabolic Rate, Alkaline phosphatase activity of blood and effect of controlled temperature on these factors; (3) degree of association between egg quality measurements and Basal Metabolic Rate or Alkaline phosphatase.

Poultry Indus. 870

Maine Second Year Egg Production of the Fowl. To study methods of increasing the productivity of hens kept for a second year of egg production.

Poultry 40

Md. Study of Factors Influencing or Controlling the Onset of Molt. To study (1) physiological factors occurring naturally which result in induction of annual molt; and (2) possible means of artificially inducing or delaying annual molt.

Poultry Husb. M-32-L

Mass. The Interrelationship of Growth with Other Physiological Factors of Chickens. To (1) establish a slow and rapid growing line of White Plymouth Rocks previously purified for dominant white plumage at this station; and (2) evaluate the importance of such factors as adult size, maternal effects, and sexual maturity on growth rate, and to determine effect of growth rate on hatchability.

Poultry Husb. 100

Mich. Cause and Prevention of Egg Yolk Discoloration Resulting from Feeding Cottonseed Oil to Laying Hens. (1) Prevention of pink whites and salmon yolks by feeding the hen possible antagonists to the causative substance in crude cottonseed oil. (2) Isolation and characterization of the substance in crude cottonseed oil that causes discoloration. (3) Inactivation of or the removal of causative agent from crude cottonseed oil. (4) Mode of action of causative substance on the yolk membrane.

Poultry Husb., Agr. Chem. 63

Physiology (Continued)

Mich. Factors Affecting the Fertility and Hatchability of Eggs. To determine (1) effects of environmental conditions on fertility and hatchability of eggs from matings of individuals involving an imported strain of S. C. White Leghorns; (2) correlations between hatchability and indices of yolk color and albumen quality; (3) if there are significant differences between hatchability of eggs laid in morning and in afternoon; and (4) effects of antibiotics, when added to semen of fowl, on fertility and hatchability.
Poultry Husb. 808

Minn. Physiological Factors Involved in Egg Production. (1) Elucidate fundamental mechanisms of egg formation. (2) Study effect of genetic, nutritive and other environmental factors on physiologic responses.
Poultry 2316

Miss. Physiological Causes of Low Hatchability of Poultry Eggs in the Summer. To find the physiological causes of the observed phenomena.
Poultry Husb. HM-5

Miss. The Interrelationship between the Endocrine and Lymphatic Systems. Learn effect of exogenous adrenal hormones, adrenalectomy, and sex hormones on growth of the bursa and on blood leukocyte picture.
Poultry Husb. HM-11

Mo. Photoperiodicity and Age on Chicken Reproduction. (1) Effect of varying day lengths on time of oviposition in domestic fowl. (2) Maintenance of egg production in yearling hens.
Poultry Husb. 292

Mo. Thyroid Activity of Chicken Laying Hens as Affected by Age, Season, Level of Production, Ambient Temperature and Light. To learn (1) level of thyroid activity of laying hens as to age, season, and rate of egg production; (2) effect of environmental temperature and light on thyroid gland activity of laying hens.
Poultry Husb. 296 (NC-43)

Physiology (Continued)

N. J. Absorption of Methionine and Histidine from the Small Intestine of the Chicken. (1) Measure absorption of methionine and histidine from Thiry-Vella fistulas. (2) Learn effects of pH, temperature and concentration of amino acid solutions on absorption process. (3) Measure absorption of histidine from isolated surviving intestine. (4) Study interrelation between amino acids when absorbed in combination.
Poultry Husb., Agr. Biochem. 18

N. J. Blood Pressure Studies in the Fowl. To determine blood pressure on chickens from 7 months of age to 2-3 years under these conditions: (1) normal commercial diets of known mineral content; (2) diets varying in cholesterol and estrogen content; and (3) diets varying in minerals, sodium, chlorine, calcium, and phosphorus.
Poultry Husb. 535

N. J. Electrocardiography of the Fowl in Health and Disease. To test the effects of deficiencies of Vitamin E, and others, also mineral deficiencies upon the electrocardiogram of the chicken.
Poultry Husb. 536

N.Y.C. Studies of the Physiology of Growth, Development, Production, and Food Utilization by Poultry. To determine (1) changes in body composition and structure characteristic of growth and development in poultry and influence of imposed dietary, hormonal, and environmental changes on them; (2) relation of changes in pattern of growth and development to subsequent productive performance such as egg production, and determine basis for such relationships; and (3) physiological values of feedstuffs, and investigate factors influencing intake and use of food by poultry.
Poultry Husb. 143

N.Y.C. Fertility in Domestic Poultry. A. Factors Influencing Fertility in a Natural Breeding Population. Study what effect factors like number of matings, level of nutrition of males, natural broodiness, and estrogen administration (to break up broodiness) have on fertility and hatchability.
Poultry Husb. 148-A

Physiology (Continued)

N.Y.C. Fertility in Domestic Poultry. B. Physiology of Poultry Semen. Study (1) the effects of diluents, dilution rates, different methods of storage and handling of semen on subsequent fertility; (2) the use of various semen quality tests as a prediction for the fertilizing capacity of certain males.
Poultry Husb. 148-B

N.Y.C. Physiology of Reproduction of Domestic Poultry. A. The Study of the Nervous Systems by Stereotaxically Placed Stimulators and its Relation to Ovulation. (1) Study effect of electrical and other stimulation of hypothalamus on ovulation. (2) Learn by electroencephalograph studies by what mechanisms various barbituates, progesterone, and adrenergic and cholinergic blocking agents prevent ovulation or induce ovulation.
Poultry Husb. 149-A

N.Y.C. Physiology of Reproduction of Domestic Poultry. B. Hormonal Relationships between Testes, Thyroid, and Comb by the Use of an Analog Computer. Study by use of an analog computer the quantitative reciprocal relationships between thyroid, gonad, and comb.
Poultry Husb. 149-B

N. Dak. The Tolerance of the Chicken Embryo to Periods of Low Temperature Exposure. To (1) study ability of chicken embryo to withstand low temperatures during incubation; (2) determine extent to which ability to withstand low temperature exposures is influenced by individual variation, family, breed, and sex; and (3) attempt to measure effects of low temperature exposure on physical and physiological composition of developing embryo.
Poultry Husb. 14-3

Okla. The Relation of Adrenocortical Function to Growth Rate in Broilers. Find physiological changes associated with adrenal cortical function following ACTH injection.
Poultry 940

Pa. Sexual Behavior of Male Domestic Fowl. To evaluate (1) effectiveness of tests with taxidermic models as method of selecting sexually vigorous cockerells; (2) group tests as techniques for rapid and practical detection of sexually active males. (3) Make histological study of chicken brain and learn nuclear masses important for sexual behavior.
Poultry Husb. 1146-A

Physiology (Continued)

Pa. Flock Organization and Egg Production in Pullets. (1) Compare pecking behavior of pullets in small and large flocks. (2) Measure effects of crowding on pecking. (3) Compare production of low- and high-ranking pullets under varying conditions of management.
Poultry Husb. 1146-B

Pa. Seasonal Variation of Shell Quality in Chicken Eggs. (1) Study shell quality of eggs produced under conditions of different temperature and relative humidity. (2) Study physiological mechanisms causing reduction of shell quality when pullets are kept at high environmental temperatures. (3) Find ways to produce sound shells under high temperatures and relative humidities.
Poultry Husb., Agr. Engin. 1199-C

R. I. Further Studies on Blood Pressure Regulation in the Fowl. (1) Learn effects of hypophysectomy and of replacement therapy, using avian pituitary extracts, on blood pressure in the chicken. (2) Observe Mecholyl response patterns of chickens of both sexes under a variety of conditions.
Poultry 808

TURKEYS

Breeding

Calif. Breeding Improvement of Turkeys: Reproduction with Particular Reference to Genetic and Environmental Interactions. Obtain data on semen and egg production; correlated responses between them and between these traits and body weight; and their interactions with environmental factors as light and temperature.
Poultry Husb. 677-H5 (W-7) Coop. USDA

Colo. Market Characteristics and Reproductive Performance Improvement of Turkeys through Selective Breeding Practices. (1) Develop inbred lines of turkeys. (2) Compare outbreeding, strain crossing, incrossbreeding and topcrossing as methods of developing a "dual purpose" turkey. (3) Compare above methods as related to livability, egg production, fertility, and hatchability.
Poultry, Anim. Husb. 205 (W-7)

Md. Selective Breeding of Medium Sized Turkeys for Improvement of Economic Qualities. To (1) improve strain of turkeys developed under this project (Maryland Medium Whites); (2) compare relative merits of Maryland Medium White strain with strains available under commercial rearing conditions; and (3) study influence of genetics on such factors as twisted hocks, eye lesions, defective feathering, and livability in general.
Poultry Husb. M-34-e

Mass. Genetic Resistance to Histomonas Meleagridis Infestation in the Turkey. To (1) determine if inherent resistance to blackhead is present or can be developed in the turkey by selection; (2) determine relative heritability of resistance to blackhead, if such can be demonstrated; and (3) study physiological background for any genetic resistance that might be developed.
Poultry Husb. 104 (NE-6)

Mass. Inheritance of Fertility and Hatchability in Turkeys. To (1) develop 2 lines of turkeys differing in mating activity; (2) study relative heritability of mating frequency in turkeys and ascertain if feasible for a breeder to select for greater mating activity; (3) study relationships between ability to successfully complete matings by the male with mating frequency in the female; (4) investigate methods of increasing mating frequency by hormonal treatments and management practices; and (5) study color inheritance, estrogenic effects on growth rate, improved techniques for artificial insemination, etc., which can be accomplished as by-products of the main project.
Poultry Husb. 105

Breeding (Continued)

Nebr. Hatchability Studies with Turkeys. To improve hatchability in Broad Breasted Bronze turkeys.
Poultry Husb. 450

N. C. Heritabilities and Genetic Correlations of Some Economic Traits in the Turkey. To (1) estimate heritability of and genetic correlations between factors affecting egg and meat production; (2) evaluate live body measurements used in appraising breast fleshing and dressing percentage in the turkey; and (3) apply this information to development of a desirable meat animal with high rate of lay.
Poultry H-94

Ohio Heritabilities and Genetic Correlations of Reproductive Characters in a Random Bred Population of Turkeys. (1) Develop and maintain a random bred population of turkeys. (2) Obtain estimates of genetic parameters, as heritabilities and genetic correlations, or reproductive characters from random bred population. (3) Use estimates of genetic parameters from said flocks to evaluate effectiveness of methods of breeding.
Poultry Sci. 138

Ohio Comparison of Physical Characteristics among Six Strains of Turkeys and their Reciprocal Crosses. (1) Learn value of heterosis in production of light weight roaster turkeys. (2) Evaluate crossbreeding as means of producing turkeys of intermediate size and conformation at mature market age. (3) Learn effect of crossing strains on reproductive performance.
Poultry Sci. 140

Oreg. Inheritance of Fertility in Turkeys with Special Reference to Semen Production and Fertilizing Capacity. (1) Estimate through selection high and low fertility lines of Broad Breasted Bronze turkeys with subsequent crossing to learn mode of inheritance of fertility. Learn (2) if there are differences in lines or families with respect to semen volume and sperm concentration; (3) fertilizing capacity of semen through observation on holding time, sperm concentration, viability and other physiological characteristics.
Poultry Husb. 17 (W-7) Coop. ARS

Breeding (Continued)

Pa. The Effect of Genes Determining Feather Color on Growth, Mortality and Reproduction in Turkeys. To learn if genes determining feather color are associated with growth, mortality and reproduction in turkeys.
Poultry Husb. 1324

Utah Turkey Hybridizing for Improved Reproduction and Growth Performance. To evaluate (1) methods and systems of breeding in accordance with current concepts of heterosis as related to: inherent fertility and hatchability, body conformation and growth economy; (2) embryological implications of artificial insemination as related to commercial practices.
Poultry, Vet. Sci. 287 (W-7) Coop. USDA

W. Va. Improving the Reproductive Performance of Turkeys. To develop strains of turkeys superior in reproductive performance by: (1) inbreeding and crossing inbred lines; and (2) identification of factors which might serve as a guide in formulation of breeding programs. To determine the effect of inbreeding and of crossing inbred lines on embryonic mortality; and of management on certain varietal characteristics.
Anim. Husb. 49

Feeds and Nutrition

Ark. Use of Products in the Southern Region as Ingredients of Turkey Diets. To learn (1) level of Arkansas produced feeds as rice and rice by-products, cottonseed meal, etc., which may be efficiently and economically used in a turkey formula; (2) amounts of supplementary materials (as amino acids) which must be added to above listed materials in order to produce optimum results.
Anim. Indus. and Vet. Sci. 436

Iowa Energy, Protein and Amino Acid Requirements of Turkeys. (1) Formulate rations for most efficient growth of poults during brooding, growing, and finishing periods. (2) Formulate rations suitable for breeding stock maintained under Iowa conditions.
Poultry Husb. 1327

Mass. The Relation of Dietary Energy to Other Nutrient Requirements of Growing and Breeding Turkeys (Protein, Amino Acids, Vitamins and Minerals). (1) Learn relationship of dietary energy level to amount of protein, amino acids, minerals, and vitamins required for health, growth, egg production, and hatchability.
Poultry 106

Nev. High Alfalfa Content Feeds for Turkey Hens. To learn amount of alfalfa that will substitute for grain and other supplements in turkey rations.
Anim. Husb., Ext. 21

N. Dak. The Use of Antibiotics and High Energy Diets for Growing Turkeys. To learn (1) level of antibiotics most effective for efficient growth; (2) energy: protein ratio for optimum growth and maximum feed efficiency during starting, growing, and finishing. (3) Provide a basis for ration recommendations for State turkey industry.
Poultry Husb., Anim. Husb. 14-5

Ohio Nutritive Requirements of Turkey Breeders. 1. Influence of Energy-Protein Ratio on Reproductive Performance. To learn (1) effect of high energy rations on protein requirement of turkey breeders; (2) effect of high energy rations on egg production, fertility, and hatchability in turkey breeders.
Poultry Sci. 164

Feeds and Nutrition (Continued)

Okla. High Energy Breeder Rations for Turkeys. (1) Improve reproductive performance of toms by forced feeding of a special breeder ration. (2) Learn protein and energy level, and C:P ratio required by breeder hens for full expression of their genetic potential for egg production under present production conditions.
Poultry, Chem. 825

Pa. Evaluation of Grasses and Legumes for Hay, Silage, and Pasture. C. Evaluation of Grasses and Legumes for Use as Poultry Pasture. To evaluate (1) orchard grass; and (2) six species of grass grown in association with Ladino clover for preference by turkeys, persistence and productivity.
Poultry Husb., Agron., Biochem. 1024-C Coop. ARS

S. C. Grazing Crops for Turkeys. To (1) compare gains in weight feed consumption and market finish and condition of turkeys raised on range vs. confinement; and (2) compare various range crops including alfalfa, Bermuda grass, ladino clover, lespedeza, soybean and Sudan grass, and various forage combinations for growing turkeys.
Poultry 73

S. Dak. Factors Affecting the Performance of Turkeys. To determine the effects of (1) variations in feeds on growth and reproductive performance of turkeys; and (2) management, breeding, and rearing practices upon performance of turkeys during growth and reproduction.
Poultry Husb., Biochem. 242

Management and Housing

Colo. Optimum Management and Housing Practices for the Efficient Production of Turkeys. (1) Learn optimum requirements of floor space, feeder space, water space, and combinations of these factors on growth and feed use of turkeys. Evaluate (2) methods of housing as to efficient growth and viability of turkeys in pole sheds, open pens, and on range; (3) various type of litter on basis of availability, cost, and performance in pen.
Poultry 58

Kans. Turkey Management Problems. 1. Hatching and Rearing Turkeys in the Fall and Winter Months. To test feasibility of hatching turkey eggs from October to May 15, inclusive.
Poultry Husb. 404-1

Nebr. The Relationship of Management Practices to the Successful Brooding and Rearing of Turkeys. To evaluate methods of brooding and rearing turkeys of high quality with specific objectives to determine the relative merit of: (1) starting poults in batteries vs. starting on litter; (2) brooding on wire vs. litter; (3) rearing with sexes separated vs. mixed flock; (4) flight prevention by wing clipping, alotomy, etc., vs. normal flight; (5) watering with drip waterers vs. trough waterers; and (6) other management practices which may arise.
Poultry Husb. 460

Okla. Management Practices and Turkey Production Efficiency. Learn (1) input-output data for turkey poults brooded to 10 weeks of age with 0.5, 1.0, 1.5, and 2.0 square feet of floor space per poult; (2) effect of the above amounts of floor space during first 8 and 10-week growing period on market quality of live and dressed broilers; (3) input-output data during 10-26 week growing period for turkeys confined to varying amounts of floor space; 2.0, 4.0, 6.0 and 8.0 square feet in pole sheds, and reared under normal range conditions; (4) effect of above amounts of floor space and effect of range-reared turkeys during 10 to 26-week growing period on market quality of live and dressed turkeys. (5) Test effect of pre-loading poles and filling resulting void around pole with grout and tamped sand, improve pole stability, as compared to conventional pole setting and complete concrete encasement, when poles are subject to maximum lateral loads. (6) Obtain data on time of assembly required by unskilled farm labor in assembly of two types of trussed rafters and their efficiency in erection of 2-pole frame turkey shelters using improved fasteners and methods of construction. (7) Obtain simultaneous data on effects of solar irradiation and wind on metal roofing surface temperatures of three kinds of livestock shelters.
Poultry 958

Management and Housing (Continued)

Pa. The Economic Production of Turkeys. To study the influence of management factors and the relationship of size of the turkey to economic production of turkey meat.
Agr. Biochem., Poultry Husb. 942

Meat Investigations

Ga. Curing and Smoking Pork and Turkeys. To learn (1) best procedure for curing and smoking pork and mature turkeys in freezer lockers and on farm; (2) best method of handling same before and after curing and smoking; (3) consumer preference for pork and turkeys cured and smoked.
Food Proc. 76

Iowa Relative Merits of De-Boned and Whole Turkey for Large Quantity Preparation and Service. (1) Investigate relative merits of various methods of dressing, preparing, cooking, and serving turkey for large quantity food service in regard to yield, cost, quality, and acceptability. (2) Learn certain factors related to most advantageous utilization of turkey in quantity food service. (3) Formulate recommendations for standard procedures regarding selection, dressing, preparation, cooking and serving of turkey in quantity. (4) Increase use in quality food service.
Home Econ., Poultry Husb. 1338 (NC-31)

S. Dak. Maintaining Quality of Turkey Meat in Market Channels. (1) Study possible factors which may influence keeping quality of turkeys in storage. (2) Develop methods for measuring quality.
Poultry 261-R (NCM-7)

W. Va. Prevention of Rancidity in Carcass Fats of Turkeys and Hogs. To (1) study methods to delay development of rancidity in carcass fats of turkeys and hogs; (2) develop and evaluate methods to predict how long carcass fats will keep without becoming rancid under normal storage conditions; and (3) obtain information on movement of vitamin E and other antioxidants from circulatory system to depot fats of living birds and animals.
Poultry Husb., Agr. Biochem. 6

Physiology

Mass. The Effects of Certain Organic and Inorganic Diluents on the Fertilizing Ability of Turkey Sperm. To learn (1) if whole semen, semen serum, or blood serum from chickens is a satisfactory turkey semen diluent under conditions of holding time and technique practiced on breeding farms; (2) if Earle's solution is a practical turkey semen diluent under above conditions.
Poultry 109

Mich. Fertility and Hatchability Studies in Broad Breasted Bronze Turkeys. Learn (1) cause(s) of poor fertility and hatchability in Broad Breasted Bronze turkeys by studying: genetic factors - lethals; physiological factors - conditions in oviduct of females or reproductive system of males; physical factors - excessive large size making mating difficult; mechanical factors - improper incubation; management factors; nutritional factors; (2) measure(s) that may be effective in alleviating condition.
Poultry 824

Mo. Determination of Thyroxine Secretion Rate of Growing Turkey. To (1) apply basic endocrinology and certain known facts on the use of various hormones to field of turkey production; and (2) determine practical value of use of exogenous hormones in obtaining beneficial returns in egg production, fertility, hatchability, growth and fattening of turkeys.
Poultry 72

N. J. Development of Turkey Broilers. To determine rate of growth of Buff turkey poults up to 12 weeks of age for use of such poults as commercial turkey broilers, and the advantages, if any, of the Buff turkey over others.
Poultry Husb. 543

Ohio The Chemical Composition and Factors Affecting Fertilizing Capacity of Turkey Semen. To study (1) chemical composition of turkey semen; (2) effect of temperature and duration of storage on fertilizing capacity; (3) effect of frequency of mating and semen dosage on fertilizing capacity; and (4) relation between frequency of collection and fertilizing capacity.
Poultry Sci. 137

Ohio Photoperiodism as a Factor in the Reproduction of the Turkey. Learn influence of day-length on production, fertility, and hatchability of turkeys starting reproduction during summer.
Poultry Sci., Vet. Sci. 139

Physiology (Continued)

Ohio Physiology of Reproduction in the Turkey Female. Learn (1) physiological mechanisms responsible for maintaining spermatozoa viability in oviduct; (2) site of fertilization and how sperm are stored; (3) chemical composition of oviduct secretions in area where fertilization occurs; (4) relation between sperm viability and oviduct secretions; (5) hormonal and/or nervous mechanisms responsible for regulation of secretions.
Poultry Sci. 184

Pa. Sexual Behavior of Male Turkeys. To (1) evaluate effectiveness of tests with taxidermic models as method of measuring sexual behavior in male turkeys; (2) measure individual and family differences in level of sexual response; (3) measure seasonal variations in sexual activity; (4) measure relation between gobbling behavior and sexual behavior; (5) evaluate role of hormonal and neurological factors in regulating level of sexual activity; (6) learn stimulus factors contributing to optimal behavior of turkey males.
Poultry Husb. 1128-A

Pa. Reproductive Behavior and Flock Organization of Female Turkeys. To learn (1) effects of selected gonadal hormones on reproductive behavior of pullets as measured by mating frequency; (2) relation between reproductive behavior and flock organization; and (3) conditions under which flock organization influences egg production and growth.
Poultry Husb. 1128-B

Pa. Gobbling Behavior of Male Turkeys and its Relation to Reproductive Behavior. Learn (1) methods of presenting known stimuli to obtain maximum frequency of gobbling response; (2) relation between gobbling response and other phases of reproduction. (3) Measure effects of selected hormones and drugs modifying neutral function on level of gobbling. (4) Histologically study turkey brain to provide a basis for neuro-psychological investigations.
Poultry Husb. 1128-C

Wash. The Genetic and Environmental Factors Involved in Embryonic Mortality in the Fertility-Hatchability Complex of the Turkey. 12. The Effect of Preincubation Management of Eggs on their Subsequent Hatchability. To (1) determine value of preheating turkey hatching eggs for short periods during storage as a factor in improving hatching potential; and (2) study interaction of such a preheating treatment with temperatures and humidity to which hatching eggs are exposed during storage.
Poultry Sci. 803-12 (W-7)

Physiology (Continued)

Wis. Fertility of Turkeys. To (1) investigate causes of low fertility in turkeys with particular emphasis on studying the mating behavior of both sexes in relation to fertility; and (2) devise a method of pre-testing and selecting males to improve subsequent performance in the breeding stock.
Poultry 951

Wyo. Effect of Altitude on Genetic Selection for Hatchability. To determine (1) nature of genes responsible for hatchability by means of reciprocal crosses of strains developed at different altitudes; (2) genetic interactions between hens and environment; and (3) heritability estimates for hatchability of turkeys at different hatching elevations.
Anim. Prod. 570 (W-7)

REGIONAL RESEARCH

NC-23 Requirements and Design of Structures and Related Equipment for Unified Farmstead Operations. To (1) establish and conduct investigations in the area of farm buildings and related equipment sufficient in scope that the various phases of structural design, production requirements, environment, materials handling, labor efficiency, and mechanisms may be studied in detail and coordinated into recommendations for efficient farmstead operations; (2) define the areas of research needed for planning of unified operations within the farmstead as follows: (a) control of environment within structures, (b) efficient labor, management, and mechanization for handling, processing, and storing livestock feed, forage, and bedding, and removing manure,(c) efficient labor management and mechanization for animal production and handling, storing, processing, and controlling quality in harvested food crops, and animal products, (d) performance and requirements of structural materials and their application to design in the development of buildings and related equipment; (3) initiate specific sub-projects insofar as resources permit, that will outline work planned for the areas of research described under objective (2).

Indiana, II-G; Ohio, II-E

The following additional stations have contributing projects which will be found in parts 3, 4, and 5: Ill., Iowa, Kans., Mich., Minn., Mo., Nebr., N. Dak., S. Dak., Wis.

NC-31 Effect of Large Quantity Preparation and Service on Quality and Yield of Meat, Poultry, Vegetables, Milk and Milk Products. (1) Investigate procedures which affect quality and yield of meat, poultry, vegetables, milk and milk products in quantity preparation and service; (2) ascertain methods of quantity food preparation and service which will improve palatability and minimize waste; (3) formulate recommendations for standard procedures in the quantity preparation and service of quality foods.

Iowa, III-D

The following additional stations have contributing projects which will be found in part 13: Ill., Kans., Mich., Ohio, Wis.

NC-43 Physiologic Responses of Laying Fowl to Their Environment. To (1) evaluate the effect and interaction of environmental factors such as temperature, air composition, air movement, humidity, light radiation and sound on physiological functions; (2) increase knowledge of fundamental physiologic processes related to egg production; and (3) clarify the physical environmental conditions which will permit maximal reproductive performance.

Mo., II-G

NC-47 Evaluation of Breeding Systems for Chickens. (1) Complete the unfinished research, which was started under the NC-8 project, entitled "Improvement of Quality and Productiveness of Poultry Through Breeding". Results of this research will be published in regional and non-regional publications. (2) Evaluate the relative rates of progress attainable by populations of chickens under various systems of breeding: (a) Study methods of producing and maintaining control populations which would be adequate as yardsticks for measuring the amount of genetic change produced by various systems of breeding; (b) estimate genetic parameters and evaluate changes in them in unselected control and selected populations -- among the parameters to be considered are heritabilities, genetic correlations, maternal effects, sex linked effects, specific and general combinabilities, and the relative amounts of various types of gene action; (c) develop and evaluate more efficient measures of performance and testing procedures. (3) Measure the interactions of heredity and environment as they affect the performance of chickens. (4) Release stocks of chickens developed as a by-product of experimental work, which may prove to be of value to the industry.

Ill.,II-A; Ind., I-A and II-A; Iowa, Kans., Minn., Mo., Nebr., N. Dak., Ohio, S. Dak., Wis., II-A

NE-6 Genetic and Physiologic Bases for Poultry Improvement. (1) To develop and evaluate methods for breeding improvement of chickens in reproduction, egg quality, meat production, viability and other economically important characters. To determine and evaluate (2) genetic correlations among economic traits; (3) genetic bases for differences in physiologic mechanisms; and (4) gene-environment interactions.

Conn. (Storrs), II-A; Del., II-G; Maine, Md., II-A; Mass., III-A; N. H., N. J., NYC, Pa., I-A; R. I., II-C; W. Va., I-A

NE-8 Essentials of Poultry Housing for the Northeast. To (1) determine the environmental requirements of chickens for maximum health, meat and/or egg production; (2) evaluate houses, equipment and methods for providing optimum environmental conditions for poultry; and (3) evaluate materials and component parts of poultry houses for performance, durability, and economy.

Conn. (Storrs), Del., II-E; Maine, I-D and II-E; Md., Mass., N. H., N. J., Pa., W. Va., II-E

S-7 Breeding Improvement of Chickens. To (1) produce chickens genetically superior in meat production, egg production and livability under southern conditions; (2) test and evaluate the relative efficiency of (a) inbreeding and hybridization, (b) family testing, (c) strain and breed crossing. (d) recurrent selection, and (e) other promising new approaches for the production of these stocks; (3) encourage and coordinate the efforts of the several southern Agricultural Experiment Stations and the USDA in working toward the genetic improvement of chickens.
Ark., Ga., Ky., La., Miss., N. C., Okla., P. R., S. C., Tenn., II-A; Tex., I-A and II-A; Va., II-A

W-7 Breeding Improvement of Turkeys with Reference to Reproductive Traits. To (1) study the mode of inheritance of the various characters involved; (2) evaluate methods and systems of breeding; (3) study size,conformation, and other morphological characters as criteria of selection, their inheritance and their effect on reproduction; (4) study environmental factors influencing genetic variation.
Calif., Colo., Oreg., Utah, III-A; Wash., Wyo., III-E

The following regional projects in related fields may be found in other parts of the "Compilation of Research Summaries" as indicated.

NCM-7 Maintaining Quality of Poultry Products. See parts 9, 13, and 14.

NEM-17 Changes in Marketing Costs. See part 14.

SM-15 An Economic Appraisal of Competitive Position of the South in Marketing Eggs and Broilers. See part 14.

LIST OF COMPILATIONS OF FEDERAL-GRANT RESEARCH PROJECTS AT STATE AGRICULTURAL EXPERIMENT STATIONS

ARS-23-8: Part Numbers	Subject-Matter Area	Title of Section
1	Agricultural Chemistry	Agricultural Chemistry
2	Agricultural Economics	a. Prices, Incomes, & General Studies of Commodities & Industries b. Farm Management c. Land Economics d. Farm Finance & Taxation
3	Agricultural Engineering	a. Land & Water Use & Development b. Power Machinery & Equipment c. Farm Structures & Materials
4	Animal Husbandry	a. Beef Cattle b. Sheep & Goats c. Swine
5	Dairy Husbandry	Dairy Cattle
6	Dairy Technology	Dairy Technology
7	Entomology & Economic Zoology	a. Field Crop Insects b. Fruit, Nut & Vegetable Insects c. Miscellaneous Insects & Economic Zoology d. Insecticides
8	Field Crops	a. Cereal Crops b. Oil, Fiber, Tobacco & Sugar Crops
9	Food Science & Technology	a. Food Chemistry, Microbiology, Sanitation & Public Health b. Food Engineering, Processing, Product and Process Development, Utilization and Waste Disposal c. Food Quality & Standards, Acceptance, Preference, & Marketing
10	Forage Crops, Pastures & Ranges	Forage Crops, Pastures & Ranges
11	Forestry	Forestry

ARS-23-8 Part Numbers	Subject-Matter Area	Title of Section
12	Fruits & Nuts	Fruits & Nuts
13	Home Economics	a. Human Nutrition b. Housing c. Clothing & Textiles d. Foods-Consumer Quality & Utilization e. Household Economics & Management
14	Economics of Marketing	a. Field Crops b. Fruits & Vegetables c. Livestock, Meats & Wool d. Dairy Products e. Poultry & Poultry Products f. Forest Products & Ornamental & Drug Plants g. Cross-Commodity & Functional Studies
15	Meteorology	Meteorology
16	Ornamental & Drug Plants	Ornamental & Drug Plants
17	Plant Pathology & Bacteriology	a. Plant Pathology, Botany, & Diseases of Miscellaneous Crops b. Diseases of Field Crops c. Diseases of Fruit Crops d. Diseases of Vegetable Crops
18	Plant Physiology & Nutrition	Plant Physiology & Nutrition
19	Poultry Industry	Poultry Industry
20	Rural Sociology	Rural Life Studies
21	Soils	a. Soil Chemistry & Microbiology b. Soil Fertility, Management & Soil-Plant Relationships c. Soil Physical Properties, Conservation & Classification
22	Vegetables	a. Vegetable Crops b. Potatoes
23	Veterinary Science	Veterinary Science
24	Weeds	Weed Control